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INFLUENZA NUMBER.

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INFLUENZA NUMBER.

A PRELIMINARY REPORT ON THE RECENT "INFLUENZA" EPIDEMIC IN DUNEDIN, NEW ZEALAND.
(From the Medical School, Otago University.)

BACTERIOLOGICAL AND PATHOLOGICAL.

By S. T. Champtaloup, M.B., B.Sc. (P.H.),
Professor of Bacteriology and Public Health;
and

A. M. Drennan, M.B., F.R.C.P.E.,
Professor of Pathology.

Owing to the lack of uniformity in the reports to hand of the bacteriology of the pandemic of influenza from different countries, we have decided to issue a preliminary report on the material which has come to hand during the height of the epidemic in Dunedin, so that other workers may have some idea of the processes and organisms which we are encountering in the southern part of the Dominion. Owing to the overwhelming nature and rapid course of the epidemic it has been impossible to work out the details of the bacteriology and pathology, which will form the subjects of later communications.

Brief Outline of the Course of the Epidemic.

For several weeks prior to the explosive outbreak in which pneumonic complications were so noticeable a feature, there was a preliminary epidemic in Dunedin and district of so-called influenza, and several cases we saw amongst medical colleagues were of more than average severity, the bronchial complications being specially noticeable. In a few of these cases we had an opportunity of examining the sputum from time to time, and found the influenza bacillus of Pfeiffer alone or with the pneumococcus.

Thereupon followed a severe type of the disease in Auckland, the severity of which we had still at that time to realize. From Auckland the severe pneumonic type rapidly spread south, and the explosive outbreak in Dunedin was so sudden and abrupt that within twenty-four hours the hospital and medical services of the city were taxed to their utmost, and within the next day or two every available medical student, nurse and a numerous band of "V.A.D." workers had been enrolled to assist the stricken.

This phase of the epidemic, which lasted for a little over two weeks, was characterized by a bacteriology quite different from the preliminary and milder epidemic.

We soon abandoned routine sputum examinations for the simple reason that in many of the fatal cases there was—owing to the overwhelming nature of the bacterial poison—either no sputum, or, at best, a little tenacious mucoid or frothy material, which teemed with the usual mouth organisms. Attempts were made to cleanse patients' mouths before obtaining specimens, but the distress of the patients and the dry, cracked condition of the mouth often made this impossible. Other observers, notably C. J. Martin, in

France, and Keegan, in America, have noted the difficulty of obtaining reliable information from the sputum and naso-pharyngeal mucus. The latter investigator had recourse to lung puncture and post-mortem material, a course we independently had adopted. Of eighteen sputum examinations made during the first few days of the explosive outbreak, the influenza bacillus was recovered in films and cultures in three cases only, although influenza-like bacilli were seen in films in nine cases.

The most noticeable feature of these sputa in film preparations was the Gram-positive flora, consisting of Gram-positive diplococci resembling pneumococci, various streptococci and staphylococci.

During the height of the epidemic we obtained a series of eighteen blood cultures, material from complications in five cases, and complete post-mortem examinations of twenty-five cases.

It is upon this material more particularly that we have based our report. Suffice it to say here that, during the first week of the explosive outbreak the Gram-positive epidemic diplococcus (? pneumococcus) was almost universally present, often in pure culture; during the second week the influenza bacillus became increasingly evident, and towards the end of the outbreak the "epidemic" diplococcus was only occasionally found, and then in relatively small numbers.

Bacteriological Findings (Summary).

Blood Cultures.—Ten cubic centimetres of blood were withdrawn during life from an arm vein. The patients were all seriously ill with pneumonic symptoms, and their temperature varied from 38.6° C. to 40.5° C.. Cultures were examined by films and subcultures daily for seven days.

Results.—Eighteen cases examined, of which one gave growth of pneumococcus. This case subsequently came to post-mortem, and proved to be one of lobar pneumonia, although pneumococci and influenza bacilli were both recovered from the lungs and bronchi. One case showed a growth of *Staphylococcus albus*, probably a contamination. The contention that the disease was of a septicæmic nature is not borne out by this small series of blood cultures, none of which showed influenza bacilli.

Secondary Complications During Life.

Of those we had an opportunity of examining, there were four purulent pleural fluids, one middle-ear abscess, and one cerebro-spinal fluid. Films and cultures resulted as follows:—

Pleural Fluid.—One case each of:—

Staphylococcus aureus.

Streptococcus pyogenes.

"Epidemic diplococcus" (? pneumococcus).

Streptococcus mucosus.

Middle Ear Pus.—*Streptococcus pyogenes*.

Cerebro-Spinal Fluid.—"Epidemic diplococcus."

It will thus be seen that in this small series of

complications the bacteria found in each case are by no means uniform.

Post-Mortem Cases (25).

In every case the post-mortem examination was made as soon as possible after death. In every case films and cultures were made from the heart blood, spleen, lungs, bronchi and subcultures made where necessary.

Heart Blood.—Micro-organisms found:—

Influenza bacilli: none in films or cultures.
 "Epidemic diplococcus": 6 in films and cultures.
Staphylococci: 3 in films and cultures.
Streptococci: 2 in films and cultures.
Diphtheroid bacilli: 1 in films and cultures.
Friedländer's bacillus: 1 in films and cultures.
B. aerogenes capsulatus: 2 in films and cultures.

Spleen.—Micro-organisms found:—

Influenza bacilli: 1 in films and cultures.
 "Epidemic diplococcus": 5 in films and cultures.
Staphylococcus aureus: 4 in films and cultures.
Streptococci: 2 in films and cultures.
B. aerogenes capsulatus: 3 in films and cultures.

Lungs and Bronchi (grouped together for summary):—

Influenza bacilli in 20 cases.
 "Epidemic diplococcus," including pneumococcus, in 23 cases.
Streptococci in 10 cases.
Staphylococcus aureus in 17 cases.

Other organisms occasionally met with were:—

M. catarrhalis in 3 cases.
Friedländer's bacillus in 1 case.
B. aerogenes capsulatus in 3 cases.

It is noteworthy that in our series of cases the *Micrococcus catarrhalis* was rarely met with, in contrast to reports of cases published in England. Possibly the difference is due to sputum and nasopharyngeal examinations being recorded, in which *M. catarrhalis* would be likely to be present in a higher percentage.

In differentiating the above organisms, the primary cultures were made on rabbit blood agar plates, either direct or after preliminary emulsification in broth. For subsequent investigation of colonies the usual culture media were used. Where required inulin, serum, water and bile solubility tests were employed, and in some cases young rabbits were inoculated.

Owing to the close resemblance of what we call the Gram-positive "epidemic diplococcus" to the pneumococcus we have included for the present both under one heading. Owing to no type pneumococcal sera being available, we have deferred classification of this group in the meantime.

It is interesting to compare our figures with those of Keegan, a summary of whose article appeared in *The Medical Journal of Australia* on December 7, 1918. He investigated in detail twenty-three cases, and found influenza bacilli in the lungs in nineteen. We found this organism in the lungs or bronchi in twenty out of twenty-five post-mortem cases. He failed to obtain any growth of influenza bacilli from blood cultures—a finding we can corroborate.

Pathological Findings (25 Cases).

As regards the pathological changes, only the gross appearances can be referred to here, as the histological examinations are not yet completed.

All of our series had some degree of tracheitis, and all had considerable bronchitis.

In the first few cases which came to post-mortem the striking features were the intense haemorrhagic oedema of the lungs, together with bronchitis, tracheitis and acute swelling of the corresponding lymphatic glands. Later cases showed definite pneumonic areas, either typical broncho-pneumonic patches around the bronchioles, or a lobular pneumonia where groups of lobules were completely consolidated and sharply defined from the non-consolidated oedematous lung. But even these definite pneumonic cases had some degree of oedema and scattered haemorrhages in lung and pleura, and the glands presented the same acute changes, often associated with haemorrhages, very rarely with abscesses. The distribution of the acute haemorrhagic oedema varied, most commonly it was in the lower lobes posteriorly, often associated with similar changes in the upper lobes posteriorly; but several cases had it in patches in the anterior parts of the upper lobes. The fluid which poured forth on section of the fresh lung closely resembled the sanguineous watery sputum seen during life in some cases.

Pleurisy only appeared in some of the later cases where there was definite pneumonic consolidation, and the organisms recovered from the exudate were pneumococci, streptococci or staphylococci, never influenza bacilli.

Definite abscesses in the lung were rare; one case where the lung was riddled gave a growth of *Staphylococcus aureus*. In another case the pneumococcus was recovered.

Bronchiectasis was found in one case, but the condition was of some standing; from the dilated bronchi influenza bacilli were recovered along with other organisms.

In the majority the right side of the heart was markedly engorged with post-mortem clot, though only in a few cases was there any considerable dilatation. No case showed recent pericarditis or endocarditis.

Jaundice was present in four of our cases. No gross lesion of liver or gall bladder was found.

No gross kidney changes, other than acute toxic appearances, were encountered.

Peritonitis did not occur in our series, and no case showed any gross change in stomach or intestines other than occasional haemorrhagic erosions of the gastric mucosa.

The spleen was not characteristic; usually it was of the familiar softened "toxic" type, and varied considerably in size, slight enlargement being most frequent.

Haemorrhages were noted in the *rectus abdominis* muscle in three cases, in the Fallopian tubes in two, and in the suprarenals in several.

It was not possible to examine the head in every case, but of those examined only one showed meningitis, pneumococcal in nature. In the others only oedema and general congestion occurred.

All of these cases of this series were examined be-

tween November 18, 1918, and December 9, 1918, the majority being in the first fortnight of that period.

NOTES ON PNEUMONIC INFLUENZA, WITH SPECIAL REFERENCE TO THE *MEDIC* EPIDEMIC.

By A. P. DERHAM, M.B., B.S. (Melb.),
Captain, Army Medical Corps, Australian Imperial Force.

The following notes on pneumonic influenza were compiled early in December, 1918, while I was convalescent in Quarantine, Sydney, in response to a request from a friend in Melbourne. As the notes were not intended for publication, I have included information from all available sources, including a series of clinical histories taken by Captains W. Broad and J. Morlet, of the Australian Army Medical Corps, and one or two facts concerning post-mortem examinations conducted by Dr. A. Dean, of the Quarantine Service. I know that some of my conclusions may be discredited in the light of present knowledge, and, as I have avoided the inclusion of later findings, which will, I presume, form part of a publication by officers of the Quarantine Department, it is with the greatest diffidence that I submit the notes for publication at this late date.

Name.

Epidemic pneumonia, pneumonic influenza, Spanish influenza, or malignant influenza.

Definition.

An acutely infective epidemic and pandemic disease, characterized by high fever, sudden onset, and a marked tendency to septicemia, cyanosis of face, arms and upper thorax, with broncho-pneumonia or lobar pneumonia.

Aetiology.

The essential causative organism has not been isolated with certainty. In most cases the *Bacillus influenzae* or allied organism is present in the nasopharyngeal discharges and the sputum.

Associated with this is a Gram-positive diplococcus (probably not the pneumococcus). This may be the only organism found in large numbers. In some cases the pneumococcus has been found, and in others a streptococcus, though these are probably secondary infections. In an epidemic of influenza in a base hospital in France, which in some respects resembled the present epidemic, influenza bacilli were present in countless numbers, to the exclusion of other organisms, in the sputum of patients with a persistent cough, weeks after the temperature dropped to normal.

A mixed vaccine of the organisms mentioned above, given in doses of 80 millions on the first day, 400 millions on the seventh day, and the same dose repeated on the tenth day, has given good results in modifying the virulence of the disease when already contracted and in controlling the character of and even preventing complications. This would argue in favour of these being the causative organisms, though the efficacy of this vaccine in producing immunity to the disease has not yet been proved (December 1, 1918).

Climate.

The effects of climate is not fully known, though it has been pandemic in countries as far removed and unlike in temperature as England and South Africa.

Race.

The coloured races are markedly susceptible, and the mortality among them is very high. Though exact figures are not available, the mortality in some areas is said to have approached 50% among natives. The mortality is usually not more than about 5% among Europeans. Again, the psychical element comes in, as the native gives up hope at once, expects to die, and often dies.

Age and Sex.

Of the patients on the *Medic*, all were males of military age, except one little girl of about ten years and two little boys of eight and twelve years respectively. All contracted the disease, but made good progress to recovery. Their mother, who nursed them, escaped, and none of the eight or nine nursing sisters on board, who were in constant attendance on many patients in confined quarters, contracted the disease. This I put down to (i.) a gradually acquired natural immunity (nobody on board was inoculated); (ii.) the fact that females are less susceptible; (iii.) their fearlessness. The experience at the Quarantine Station is that women patients, as a rule, do well.

One old man on the *Medic* was a sergeant-major, well over 50, who contracted the disease and progressed to a good recovery. The fatal cases have often been in young, healthy, robust, full-blooded men in good physical condition, and the same applies to patients who developed more serious complications but eventually recovered.

This may be partly due to the fact that these strong young men fought against the disease or concealed it for some time, thus throwing a severe strain on their toxic heart muscle.

Incubation Period.

The incubation period varies from one to three days, or a little longer, the average being from two to two and a half days.

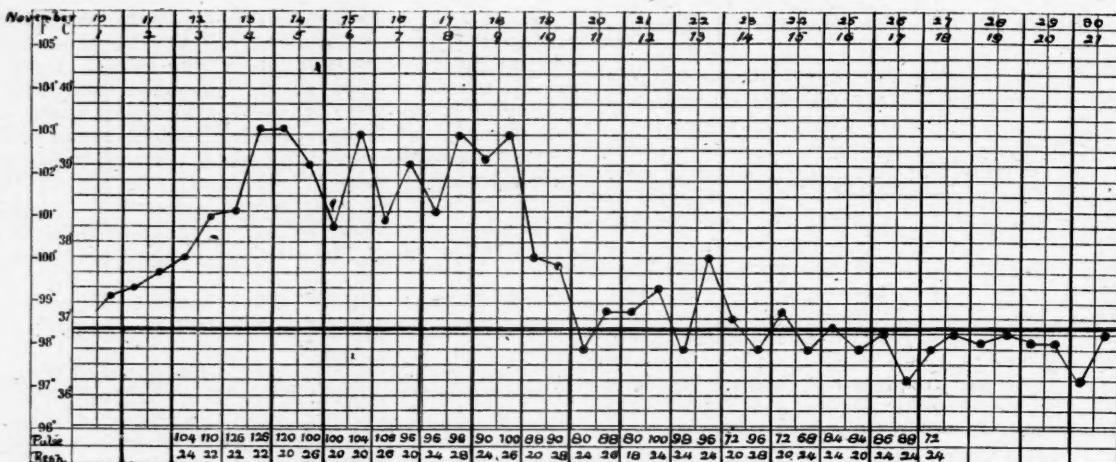
Mode of Onset.

In the South African and New Zealand epidemics the mode of onset seems to have been very sudden, patients falling down in the streets as though "sandbagged," but in the *Medic* epidemic the onset was gradual, a slight bronchial catarrh, malaise, vague limb and back pains, headache, a temperature of 37.2° C. (99° F.) on the first day, rising to 37.8° or 38.4° the second day, and 38.8° or higher on the third, and then 39° or 40°. Prostration came on gradually, loss of appetite and constipation likewise; but by the third day these symptoms were extreme. In some cases the rise in temperature was rapid.

Signs and Symptoms.

In this section we can refer back to the signs and symptoms of the onset already given, and we shall for the present purpose consider the lung conditions as symptoms, not as complications, for signs of lung lesions appear in almost every case. The temperature-pulse-respiration ratios are best illustrated by giving my own chart (an attack without serious complications or relapse). It will be seen that nowhere

does the pulse-respiration ratio reach the 4:1, typical of lobar pneumonia. Taking the systems in order, I shall describe a typical case, referring to my own case where relevant.



Nervous System.—The higher faculties remained clear, except when delirium supervened in very serious cases. There was a marked absence of mental depression (which is characteristic of ordinary influenza), either during or after the attack. "Influenzal" pains and headache were present, but not very marked, the chief symptoms were fever, extreme weakness, amounting to a condition of torpor in some cases, absolute loss of appetite, amounting to a loathing of ordinary food and vomiting it when taken. In the majority of cases sleepiness (almost approaching coma in the worst cases) was marked, though sleeplessness was present in a few. The weakness was very much more marked in the legs than in the arms, both during the disease and during convalescence.

Local Nervous Symptoms.—In one case facial hemiparesis developed about the seventh day, possibly due to middle-ear catarrh. In other cases various forms of neuritis were reported, but I have no details of these.

Alimentary System.—Loss of appetite has been already described; vomiting (apparently toxic) occurred in more severe cases, but was not common. Constipation was the rule; one case of diarrhoea at least occurred.

The tongue was extremely dirty, heavily coated with a thick, white fur, but in most cases was not as brown or as dry as in enteric fever, and there was no marked tendency for sordes to form on the lips and teeth.

Sore throat and enlarged tonsils were not common. They were absent in my case.

Abdominal pain or discomfort was not marked; pain and tenesmus was present in the case with diarrhoea. Slight distension, with tenderness, was present in some cases, suggesting an abdominal condition.

Bleeding from the lower bowel was marked in the severe haemorrhagic cases, and in some of these blood was also vomited.

The spleen was enlarged in at least one case.

Cardiac System.—Toxic weakening of the myo-

cardium was perhaps one of the most marked features. This is characterized by faintness on the least exertion, with shortness of breath. The heart sounds in the majority of cases were clear, but in severe cases,

particularly with pneumonia, the right side of the heart was enlarged and the dulness extended across the middle line. This proved to be a danger signal. The pulse was not very rapid as a rule, the usual maximum being 120. The volume was poor, and in many cases irregularity was present. In this connexion may be mentioned a very marked cyanosis of the face and hands, which appeared as the fever reached its height. The lips were blue or purple, face blue and almost livid in appearance. Whether this cyanosis was toxic, pulmonary or cardiac in origin is not certain, but probably the first and third factors explained it, as it occurred in the absence of pulmonary involvement in my own and other cases.

Respiratory System.—The condition of the throat and tonsils have been already mentioned. Coryza was not very common, nor was there usually marked naso-pharyngeal catarrh. Loss of voice occurred in one or two cases. Epistaxis was common, as was also haemoptysis. This varied from blood-streaked mucopurulent sputum (apparently from the bronchial mucous membrane), through that of "plum juice" or sputum in the pneumonic cases, to absolute and profuse haemoptysis in the haemorrhagic cases. An initial bronchial catarrh, with slight cough, was the first symptom in many cases. This persisted through the disease, and convalescence in some cases, the sputum becoming muco-purulent and purulent at the height of the fever and during its fall—yellowish and streaked with blood—and becoming clear again in convalescence.

Pulmonary Signs.—In the majority of cases about the second to the sixth day signs of bronchitis appeared, with rhonchi, and bronchiolitis, with moist râles. Some cases went no further than this. In my own case there were doubtful, moist râles. Crepitations appeared in the right axilla, near an old empyema scar, but no other signs of broncho-pneumonia appeared. In many cases, however, definite signs of at least a small patch of broncho-pneumonia appeared at one or other

base, or in the axilla. The more severe cases had large, confluent patches of broncho-pneumonia, approaching the lobar in type, with or without pleural effusion. In one case double pleuro-pneumonia developed as late as the tenth day, and there were typical signs of consolidation, with pleural effusion, with "plum juice" sputum. The pleura was explored with aspirator, but no fluid was obtained. In this case the temperature, which had been falling in a pseudocrisis, went up again to 40° C., where it stayed for some days, till it fell by slow lysis. Patients with as serious signs as these usually died either in the early stages (haemorrhagic) or later in the pneumonic stage.

This particular patient, after the crisis, developed a right parotid swelling, which was very painful, but did not suppurate. He was a captain in the Royal Flying Corps, with four years' service, a man of splendid physique, 24 years of age; but he had had a recurring ischio-rectal abscess for many years and had had frequent and very severe peritonsillar abscesses. Otherwise his health had been good. One patient, who had previously been subject to chronic pleurisy, developed a pleurisy during the course of a mild attack of the disease, but convalescence was uneventful. Patients with previous tubercular infections are especially liable to severe or fatal developments. It is too early to say to what other respiratory sequelae the disease predisposes, or what old-standing lesions are liable to be reawakened to activity.

In one case, in an athlete of 29 years, the temperature fell to normal on the sixth day, after an uneventful course, but shot up on the following day to 39.4° C., and the signs described above, of incipient broncho-pneumonia, appeared, but did not progress; the temperature fell again to normal on the eleventh day, with an uneventful convalescence.

Urinary System.—No information is available as to chemical condition of urine. It was highly coloured during high fever and later cloudy. The quantity was diminished, but later normal. Retention, with distension of the bladder, was present in many cases, probably due to weakness, loss of tone and neglect to answer the call.

Cutaneous System.—No remarkable changes were noted, but I have not seen the notes of the more acutely haemorrhagic cases. Acne-form pimples appeared on the body and shoulders of many of the *Medic* patients, but no other rash.

Muscular System.—The weakness already described was accompanied by general wasting and loss of flesh, due to fever and starvation; the wasting was very much more marked in the leg (below the knee) than in any other muscles. The face did not become very emaciated.

Osseous System.—Except for pains in the back, which were probably muscular, no symptoms or complications have yet been noted.

Special Senses.—The senses of smell and taste are perverted, ordinary food and drink having a horribly repulsive smell and taste quite foreign to them normally. Sight is unaffected. I was quite able to read with pleasure every day, except when I was too weak to hold the book.

The chart given is fairly typical of all uncomplicated cases. The complications appeared at various times, as did signs of pulmonary mischief.

Complications.

The complications have already been mentioned in discussing signs and symptoms, under which head I have included the pulmonary affections.

The only three others were (1) the parotid abscess, occurring about the twelfth day, (2) the facial paralysis, about the eighth day, and (3) the pleurisy, occurring in a patient subject to this affection. (4) Jaundice occurred in some patients, two of whom died after being jaundiced for fourteen days.

Cause of Death.

It seems that the cause of death was an acute toxæmia, causing cardiac failure, and aggravated in most cases by lobar or broncho-pneumonia. The average day of death has not been worked out, but is roughly from the sixth to the tenth day in the *Medic* series. In some cases marked pleural effusion seems to have contributed to death in the final stages, as the lungs and pleurae were found water-logged post-mortem.

Post-Mortem Findings.

These included dilatation of the right side of the heart, thinning of cardiac walls, with toxic spoiling of the myocardium. In the lungs the findings varied in different cases, but bilateral or unilateral pleural effusion was common. In some cases all the lung tissues were bathed in pus, in others there were bronchopneumonic patches, in others again lobar pneumonia in a stage resembling red or grey hepatization was the chief condition.

I have no information regarding the other organs in the haemorrhagic cases.

Treatment.

I.—Prophylactic.—The ordinary measures of isolation, cleanliness, spraying, etc., are too well known to be mentioned. Inoculation, with a vaccine composed of the chief causative or allied organisms, may or may not protect against infection. The length of the immunity conferred is doubtful. It is probably short. The dose now recommended is: First dose, 80 millions mixed vaccine injected hypodermically; second dose, five to seven days later, 400 millions.

II.—Curative.—In this connexion, rest in bed, keeping the bowels open, giving nourishment and protection from cold, are obviously important, but most important is the fact that the vaccine is practically proved to be of extreme value in controlling the disease and limiting complications. The first dose (80 to 100 millions of mixed vaccine) is given as soon as possible, 400 millions seven days later, and another dose three days later, if all goes well. In severe cases larger doses are given intravenously.

For the rest, the treatment is symptomatic. *Haust. ammon. acet. cum pot. cit.* (Melbourne Hospital Pharmacopœia) seems to be the most rational mixture as a routine. Aspirin and quinine, etc., are, I believe, useless in early stages, and even dangerously depressant to the heart. Purges should be given when necessary, a dose of calomel (0.24 grm.) at night and magnesium sulphate (7.2 grms.) in the morning is not too drastic.

Nourishment is a problem, but in my own case I found that cold soda water and milk in equal parts, with an occasional raw, unwhipped egg, with orange juice, were the only palatable forms of nourishment. Beef tea could also be taken. Of course, off ship-board, many invalid foods could be taken, which were not available on the *Medic*.

Sponging is grateful, and should be done twice a day very gently.

The course of the disease is too rapid for bed sores to be a serious danger.

The treatment of pulmonary conditions and complications does not differ from those of other diseases. Bleeding seemed to do good in cases of lobar pneumonia with cyanosis, and I suggest that bleeding, combined with intravenous injection of normal saline solution, would be still more valuable. The marked cyanosis would suggest oxygen inhalation, which, however, is of doubtful value.

A rapid, feeble pulse would suggest digitalis in moderate doses, combined with strychnine. This combination has been used apparently with good effect. In the early catarrhal stage I personally would strongly recommend *tinct. benzoin. co.*, 0.9 mil, on sugar every four hours, and 3.6 mils as an inhalation three times a day.

The site of infection is probably somewhere in the respiratory passages, and such a local method of attack could at least do no harm, either in initial or convalescent stages.

In cases where there is obvious or suspected pleural effusion, especially with respiratory or cardiac embarrassment, this should be at once drawn off with an aspirator. At the same time it would be wise to combat the collapse so common in paracentesis with pituitrin hypodermically, with or without intravenous injection of normal saline solution. The supreme importance of watching for and drawing off pleural effusion is proved by its presence in several cases post-mortem.

Posture.—The best position, in my opinion, is one of the greatest comfort to the patient. As the pneumonia is toxic, and not in any way hypostatic, I do not think it important to prop the patient up high, unless he is most comfortable in that position. Many patients are so terribly feeble that such a position would distress them very much.

Headache should be relieved by cold compresses to the forehead, frequently changed. Aspirin should be used little or not at all, except where other measures fail to produce rest.

Patients must be constantly watched by a medical officer or skilled nurse in the serious stages, and most drastic measures must be used to combat cardiac failure when it threatens. This and the elimination of toxins are the great points in treatment of the more serious cases.

Convalescence.

As soon as the temperature falls to normal the appetite begins to return and there seems to be no reason why the patient should not have any food he fancies in as great quantity as he can take. Although the appetite returns quickly, the strength does not, and extreme weakness persists for a week or more after the temperature falls, it being an effort even to

sit up in bed, much more to walk 100 yards. Any effort produces a racing, weak, often irregular pulse and a feeling of faintness. This does not apply to arm movements, which are fairly vigorous and performed without distress. Sleeplessness is not a feature of convalescence, the patient tending to sleep more than normally. Among 48 convalescents examined about three weeks after onset, 50% had tachycardia, with a pulse of poor volume and various forms of irregularity.

Quarantine Considerations.

It is believed that the causative germs die almost immediately on leaving the body, the theory being that the disease is transmitted by one person breathing in the naso-pharyngeal discharge of an infected person disseminated in the air by sneezing, coughing, etc. Kissing, etc., of course, would be an obvious means of transmission. As far as is known, the disease is not transmitted by *fomites*, i.e., clothes, etc.

The question of "carriers" is not yet settled, but in an epidemic mentioned above, of 50 cases among the staff of a general hospital in France, it was found that cases with cough persisting after convalescence (especially when their sputum was purulent) had sputum teeming with countless millions of germs resembling the *Bacillus influenzae* for weeks after the temperature had reached normal.

The epidemic in France mentioned above is described in the *British Medical Journal* of September 14, 1918; but it is not certain that the type of disease was identical with the *Medic* epidemic, the mildness of the cases in France suggesting ordinary influenza.

The incubation period being two days—almost certainly never more than five days—one week would seem to be sufficient for isolation of contacts, unless the question of "carriers" were to be considered. Our present knowledge does not seem adequate to deal with the latter question. The period of infectivity of patients probably extends from (or before) the commencement of symptoms to some date yet unfixed after the temperature falls to normal, the present rule in Sydney being seven days at least normal temperature, then three days' fumigation with steam and 2% zinc sulphate solution for ten minutes, then release from quarantine. All serious cases are getting much longer than this. Personally I should add the proviso that all naso-pharyngeal and bronchial discharge should have ceased, or at least be proved to be non-infective. The thorough investigation of all these points is still in its infancy; but so far the rules which have governed the isolation of patients have prevented the spread of disease outside the quarantine area, which appears to prove that the method is effective and the length of quarantine sufficient.

Diagnosis.

In the early stages or mild cases the diagnosis is difficult, and seems to rest on a knowledge of the source of infection, or the appearance of one or more of the complications so common in severe cases. Expert pathological examination of the discharges may confirm a suspicious case, but this is not possible for the ordinary practitioner. Too often in commencing epidemics the diagnosis has only been made certain by the death of some young, previously healthy adult.

Prognosis.

The prognosis has already been touched upon throughout the notes. Extensive pulmonary involvement, pleural effusion, deep cyanosis, marked delirium, haemorrhages from lungs, stomach or bowel, jaundice and cardiac failure were all found to indicate a probable fatal ending, though the jaundiced patients lingered in some instances for more than fourteen days.

In conclusion, it may be said that it is impossible to predict from a patient's previous condition what the course or the result of the disease will be. Infants and very old people must surely be in grave danger if they contract a severe form. Natives of all coloured races are particularly liable to die. For the rest, young men in robust health, full-blooded, non-alcoholic, seem to get a worse form and to die more readily than those apparently less robust. Immediate recourse to bed, keeping the chest thoroughly warm, fresh air, nourishment, free evacuation of the bowels, and optimism on the part of the patient are, in my opinion, important, and vaccine treatment after the disease is contracted has been proved of great value.

NOTES ON THE MICROBES OSTENSIBLY RESPONSIBLE FOR PNEUMONIC INFLUENZA.

By **Frank Tidswell, M.B., Ch.M. (Syd.), D.P.H. (Cam.)**,
Microbiologist to the Royal Alexandra Hospital for Children,
Sydney.

I am in the habit of examining and reporting sputa "right out," noting everything I see of ostensible importance. The notes form a record, and the record forms an experience which may be of interest at the present time.

Until about six months ago I rarely found any influenza bacilli in very numerous sputa examined during the last four years. Here and there I have noted "influenzoids," that term denoting my uncertainty as to the identity of the microbes seen. During the more recent months these particular forms have appeared more often, and latterly have been very frequently present. The microbes in question are small bacilli, often coccoid, Gram-negative, showing bipolar staining with weak carbol-fuchsin, and especially with carbol-thionin. They are usually found aggregated in groups round *Micrococcus paratetragenus* and easily contrasted with their size, shape and Gram-positive staining, this last feature being more constant with carbol-gentian violet than the usual descriptions would lead one to expect. The bacilli exhibit the characters upon which one has to rely for diagnosis of Pfeiffer's bacillus; there is no specific test.

The sputa to which the foregoing applies are more particularly mucoid or slightly purulent, voided during a persistent intermittent cough, which the patients frequently correlate with an attack of influenza some weeks previously. Acute influenzal sputa have rarely come my way.

Until recently I made no cultures, but a month ago, being called upon to prepare a vaccine for such a case, I had no difficulty in obtaining cultures of the microbe

on (human) blood smeared agar, nor in maintaining subcultures on the same medium.

I have since obtained growth from several other sputa. The characters of the growth were those of the influenza bacillus, and at one time or another I have observed the favouring effect of symbiosis, particularly with *Staphylococcus aureus*, and have seen the formation of the rather unusual "giant" colonies. The bacilli in these cultures were generally like those in the sputa, but a high proportion were longer and broader, presenting a definite bacillary form, and a few approached a thread-like length. I thought at first these were Friedländer's bacilli, or contaminations, but as they continued to appear in cultures made from single minute isolated colonies, I am inclined now to view them as influenza bacilli of unusual or aberrant morphology, perhaps involution forms.

Almost invariably I have found pneumococci in the same films and cultures, a circumstance that did not strike me as peculiar, seeing that the material was sputum. In retrospect I think the proportion of pneumococci to other species has been higher recently than was formerly the case, but this is only an impression, as no estimates were made. Undoubtedly, however, pneumococci are almost invariably associated with the influenza bacilli.

My notes record, more or less regularly, also the presence of *Micrococcus catarrhalis*, but in a perhaps rather casual way I apply this term to Gram-negative, biscuit-shaped diplococci, which appear to be this species without further proof. However, many times they have been cultivated for vaccines, and gave the correct growths, so that presumably my diagnoses of them has been substantially correct.

Under the term micrococci, which are always present, I group both Gram-positive and Gram-negative forms, generally regarding them as mouth forms derived from admixture of saliva or pharyngeal secretion with the actual sputa (excreted through the larynx). They have usually been mixed up with *Bacillus buccalis maximus*, leptostrix filaments, spirilla and other varieties of bacteria, including many micrococci which abound in the mouth, especially when the teeth are defective, which is most commonly the case. My lists doubtless include the pyrogenic cocci *aureus* and *albus*, though they were rarely distinguished as such, as cultures were seldom made.

Streptococci of the *brevis* type and irregular forms (partly short-chain cocci and partly small groups) have been noted frequently, but I have not noted the *longus* (potentially virulent) type apart from sore throats or tubercular conditions.

All these forms, with the exception of *Bacillus influenzae*, and perhaps a larger representation of pneumococci, were my usual experience any time during the last four years. The exceptions just mentioned have become the rule during recent months. It is within that period, I think, that clinical influenza (if I may so speak) has been more or less prevalent amongst us, and it seems a fair inference that the malady so diagnosed, clinically has been really due to the Pfeiffer bacillus. With it there has been associated the pneumococcus, or, at all events, that appears to be so in the persistent coughs which

hang on after the more acute condition has passed away. I venture the opinion, based on the foregoing facts, that both the influenza bacillus and pneumococcus are very prevalent amongst this community at the present time.

The particular interest attaching just now to these remarks is that the microbes above mentioned are those held to be responsible for the "Spanish influenza," with which we are threatened. I gather from reports of investigations made elsewhere in the world that influenza bacilli and pneumococci have been the micro-organisms most usually found, although some stress is laid on a Gram-negative coccus not further described in any account available to me, and not mentioned in most reports. One is left to conjecture what this is (? *B. influenzae* in its coccoid form, or one of the common mouth cocci); no proof has been given of its pathogenicity.

I have not succeeded in persuading anyone, State or Federal, to furnish me with original material from any of the cases in quarantine, and so I am not in a position to make a rigid comparison of such sputa with the local ones with which I am familiar. As a matter of official co-operation with him in preparing vaccine, my friend, Dr. J. B. Cleland, has furnished me with cultures of microbes isolated at the State Health Department, I understand from quarantine patients' sputa, and these comprise influenza bacilli, pneumococci, streptococci (*brevis*), *Staphylococcus aureus* and Gram-negative coccus, quite identical in species, as far as my observations reveal, with those previously isolated from local cases. The only element of doubt is the Gram-negative coccus, and with respect to this I cannot make headway, partly because it is similar to the Gram-negative cocci I have been accustomed to find and know very little about, as they have not seemed important enough to investigate, and partly because the Gram-negative coccus mentioned in reports from abroad is named, and not further described within my knowledge.

Presuming that here as elsewhere, the pandemic malady is influenzal pneumonia or pneumonic influenza, which ever term applies; that is to say, that it is due to *B. influenzae* associated with pneumococci, one is left high and dry as regards understanding the apparently excessive virulence as compared with that of our own malady, due to the same association of microbes. In the absence of data, anything that could be said on the subject could not be other than speculative, and so is better left unsaid. This does not detract from the importance of the question to the medical members of the community, who may at any time be called upon to face an epidemic, and who are now being daily required to advise their clientele in the matter of vaccination. True, we have the guidance of official pronouncements, but we shall be able to appreciate them more, and support them better, if someone competent to do so will furnish us with some detailed technical information. Until this is done we shall continue in our present state of indecision, professionally unprepared to give, as we all desire to give, the greatest assistance we can to the authorities if they have to cope with the disease here. It might be of considerable value if some of our clinical confrères would undertake to give us their

experience of the symptoms and fatality of the influenza which has prevailed in Sydney during recent months.

INFLUENZA IN NEW ZEALAND:

Some Observations.

By J. P. Hastings, M.D., M.R.C.S. (Eng.),
Temuka, New Zealand.

For the past few weeks the nightmare of New Zealand life has been the great epidemic. From north to south it has spread through the country. One has been able to watch its progress; as first Auckland, then Wellington, then Christchurch and finally Dunedin became centres of infected areas.

In Temuka the most serious cases were, in the main, in people who had been to Christchurch at a time when the epidemic was becoming serious in that city. Soon after their return they developed the disease. At the commencement of the epidemic one is apt to be misled. A patient develops what appears to be an ordinary attack of influenza. To begin with, there is fever, with pains in the limbs, back and head. Only too often at the end of a few days respiratory symptoms become prominent. The breathing becomes rapid and laboured. On the other hand, patients who are "going wrong" often exhibit very few thoracic signs.

Examination of the chest would perhaps reveal an area of dulness at one base and a few crepitations. The temperature might be 37.8° C., the pulse-rate 120 and the respirations 36. Frequently such a patient would be cyanosed. In cases which ended fatally the cyanosis would increase and the respirations become more frequent.

The striking feature about pneumonia in this epidemic is the fact that it is atypical. I have no doubt the causative organism is the haemolytic streptococcus.

In Temuka we opened two hospitals for serious cases. During three weeks 120 patients were treated in hospital. Of these, seventeen died. The population of Temuka and surrounding district is about five thousand people. During the epidemic every house in the district was visited daily by voluntary patrols. These patrols reported to the hospital headquarters. In some instances every person in the house was found in a helpless condition. At the hospitals most of the help was given by voluntary workers. All the helpers were obliged to wear efficient gauze masks. I advised the health authorities to make it compulsory for everyone in the town and district to wear masks. This was not enforced. Once the disease has entered a community the wearing of masks is the most important prophylactic step that can be taken.

In some hospitals, where masks were not worn by the attendants, all the nurses went down and some died. At the Temuka hospitals, out of 57 nurses only six were attacked and none seriously. At least three of these six were careless in using their masks. These facts strikingly illustrate the value of masks.

Treatment.

The treatment followed in cases where there was no congestion of the lungs consisted in rest in bed and a liquid diet, e.g., lemon drinks, currant drinks, etc. No milk nor beef tea was allowed till the temperature

was normal. Usually the patients were put on the following mixture four hourly.

R.—

Tinct. nucis vomicae, 0.18.

Sod. salicyl., 0.3.

Liq. ammon. acetat., 0.9.

Liq. chloroform., ad. 15.

Sponging was done at least twice daily. Where signs of congestion of the lungs developed the patient was given every four hours the following:—

R.—

Liq. hydrarg. perchlor., 0.6.

Liq. ferri perchlor., 0.6.

Tinct. nucis vomic., 0.3.

Glycerini, 7.2.

Aq. chloroform., ad. 15.

If the condition became more serious the treatment was altered. These serious cases were given five drops of adrenalin chloride (1 in 1,000) every hour and 0.5 c.c.m. of pituitrin every four hours. The patient was put in packs (cold on the chest and hot on the feet and legs).

All alcoholics were given a tablespoonful of brandy four hourly. Non-alcoholics were usually given two teaspoonfuls of brandy four hourly.

Once daily an injection of pneumococcal vaccine (0.36 c.c.m.) was administered.

When in spite of this treatment the patient was obviously getting worse his median basilic vein was opened. From 300 to 600 c.c.m. of blood were allowed to escape and a half to one litre of normal saline solution introduced. Usually adrenalin and vaccine were given in the saline solution.

Effects of Treatment.

Improvement in many of the serious cases followed the use of the packs. Frequently after two or three packs had been applied the breathing would become easier and the cyanosis would disappear.

Bleeding and intravenous saline injections were tried only in desperate cases. Three patients, who were apparently dying, recovered with this treatment. A fourth patient rallied and lived for seven days following the procedure.

Complications.

Two patients developed pleurisy with effusion. This cleared up with rest and medical treatment.

One patient developed empyema of the frontal sinus. The sinus was opened and drained. The patient made an uneventful recovery. During convalescence from pneumonia one patient complained of stiffness in the neck and headache. At the end of twenty-four hours there was definite retraction of the head. Kernig's sign was not present, but on extension of the leg on the thigh pain was complained of in the back of the neck. The knee-jerks were increased. Babinski's sign was absent. There was no ankle clonus. A diagnosis of meningitis was made. Lumbar puncture showed moderately increased tension of the cerebro-spinal fluid, which was slightly cloudy. Microscopical examination of the fluid failed to reveal any micro-organisms. Twelve hours later a second lumbar puncture showed blood-stained fluid. Microscopical examination of this revealed leucocytes of polymorphic type and scanty Gram-positive cocci. Cultures were negative.

On the third day the patient developed paralysis of the left arm and left leg. There was conjugate deviation of the eyes to the right. At 6 p.m. that evening she died. There was no autopsy.

Depression has, in many cases, been a marked feature during convalescence.

Acute dilatation of the stomach, without vomiting, was not met with. Its possibility should be remembered.

Chronic Influenza.

Some patients, who have had little or no fever throughout their attack, complain of lassitude and anorexia. Examination of the chest reveals dulness at one or both bases and coarse crepitations. These cases of chronic influenza may persist for weeks.

Prognosis.

Under this heading the word caution must be "written large." These cases are atypical. The following incident will illustrate this point. One man was apparently convalescent from an attack of influenza. There were no chest signs. During the night he received word of his brother's death from influenza. Next day he had double pneumonia and was dead in thirty-six hours.

Fear seems to play a large part. The patient who "loses heart" is notoriously prone to succumb.

Relapses are comparatively frequent. It is remarkable how long the signs of congestion sometimes remain at one or both bases. For weeks after the patient feels well and looks well physical examination reveals signs of congestion. It is in these cases that danger of relapse is perhaps greatest. Unless the practitioner makes a careful examination he may be misled by the patient's statement and by his appearance.

It is advisable to keep the patient in bed for seven days after the disappearance of all physical signs.

THE INFLUENZA AND OTHER EPIDEMICS.

By C. MacLaurin, F.R.C.S.,
Sydney.

The profession has to thank you for your dignified protest against the hysteria and exaggeration which has distinguished the press of Sydney in connexion with the present epidemic. I believe in those three millions dead in India about as much as I believe in the three millions who accompanied Xerxes over the Hellespont. Both numbers simply signify Oriental historians' and American journalists' ideas of a large number, and are incredible. And when the *Herald* says outright that this is the most terrible visitation that has ever attacked mankind, and that it has killed more people than the war, one wonders whether one is awake or dreaming.

Journalists ought to read history. I wonder is there a single one in Sydney who has ever read a detailed account of the Black Death; and yet that was the turning point of history and the source of almost all the troubles which afflict society to-day. There is no doubt that it was to a large extent the ordinary bubonic plague. The first chapter of Boccaccio should satisfy anyone on that point. Yet even here one doubts. He mentions a spitting of blood occur-

ring in other parts than Florence. Turning to other writers, one finds a great coughing and vomiting of blood, invariably fatal. One reads also of huge, black patches which cover the skin, and even the whole body turning black. As to the mortality, it was beyond anything of which we have had experience, either before or since. Whole towns were depopulated; the crops rotted on the fields for years; in many districts no services could be held, for the priests were dead for miles around. In some places probably nine-tenths of the populace died in the course of a few months.

But what was that other, that abnormal, form of disease, which cannot be identified, so that a special form of plague, *pestis indica*, has had to be invented for it? We have so long been certain that no other disease but the plague could have caused such a catastrophe that we cannot bear to think that there may possibly be another. Was it pneumonic plague? Well, do the subjects of that frightful disease vomit or cough huge quantities of blood, and do they turn black? They may do so, because, happily for me, I have never seen a case; but I protest I have never heard or read of such symptoms, though we have all been reading plague recently.

Here is a description of a disease, which is at all events suggestive: "The above type may suddenly become fulminating. The colour of the patient becomes cyanosed, and later on a jet black."

And again: "Bleeding from the nose and vomiting of bright, red blood was common among the patients from the s.s. *Atua*. Others again had vomiting, but no blood in it."

It does seem to me quite possible that at the time of the Black Death there was for the first and only time in history a combination of the plague and the strange disorder which is now knocking at our doors. Hence the unparalleled mortality. But that does not justify us in calling this disorder by the dreadful name of plague.

When man first came out of his caves and trees and sought shelter in his villages and tiny farms, he had to face two terrible enemies: the lion—"the terror that walketh by night"—and the wolf, that stole the baby from the mother's breast, the child from the cradle. Man conquered these enemies. He commenced to live in cities, and was attacked by another and still fiercer foe—the Oriental plague. This rendered cities almost uninhabitable for thousands of years, till about 1700, when man conquered that dreadful enemy without his knowing how he had done it. He began to lock up his foodstuffs and his stores of grain; he built his houses better; perhaps he became cleaner in his habits; in other words, he kept the rat at a distance, and, without the rat, as Tidswell here showed, you can have no plague.

The story of the plague is the most dreadful in all that narration of the crimes, follies and misfortunes of mankind which Gibbon called history. It has slain uncalculable millions; during the Middle Ages it was the unquestioned Captain of the Men of Death; it was probably almost the normal cause of death for centuries; no man can even venture to guess at what the world might have been had there been no plague. And yet our hysterical journalists apply that name of awful omen to the comparatively harmless disease which we have so far kept at bay.

Small-pox and typhoid we have defeated, but we still have to contend with alcohol, syphilis, tubercle and cancer. The triumph over all these together will be small compared with the triumph over plague.

What was the sweating sickness? It first broke out in Henry VII.'s army after Bosworth, and rapidly spread over England. It was not mentioned by Galen nor Hippocrates, so the physicians would not treat it, nor apparently have they left a full description of it. You had shivering, headaches, pains everywhere, and the whole thing culminated in a profound sweat, after which you got up and went about your business. Your doctor would not come near you, perhaps luckily for you at that time. If you took to your bed and stayed there for several days you got perfectly well, but if you tried to go on with your ordinary work you died. Is not this a nearly perfect description of the ordinary influenza? The only thing in which the description fails is that it was confined to England, owing, as the gentle Germans say, to the exceptionally gross and filthy habits of our abandoned people.

Now there were three other outbreaks of the sweating sickness, each attack becoming more and more terrible, until the fourth attack, which occurred in 1585, was the worst of all, and slew immense numbers of the English, and even of the dreadful Scotch, who, I suppose, were even more worthy of death than the Southrons. Holland got a touch of it then. But, curiously enough, there seem to have been a great number of epidemics flying about the world at that time. There was a dreadful epidemic of diphtheria—at least, so it seems to me—in Switzerland and Germany, and another sort of illness, called petechial fever, which I identify as typhus, in Italy and Spain, and a great French army, which tried to avenge Pavia by besieging Naples, was wiped out by what seems to have been dysentery; don't we know it, at Anzac!

Of course, we cannot identify all these sicknesses at this time of day. We read the old authors, but we do not understand their phraseology. What with rising of the lights and black humours in the blood and fifty other funny things we never learnt at school, how can one century understand another? But I should not be the least bit surprised if the terrible English sweat was in reality our severe influenza.

Now, here is a strange thing. Those epidemics of influenza which have occurred in living memory have followed a certain fixed course. They came in twin-epidemics, and they became more severe after each attack. There was a mild attack in 1847 and a severe in 1848. There was a mild attack in 1889 and a very severe one in 1890, which killed off all the old people in England, and did not spare the Duke of Clarence. It lifted its ugly head again last year, but in mild form, and returned again with terrible severity this year. I do not wish to prophesy, but on the analogy of the sweating sickness, which took about a hundred years to come to its full terrors, let us suppose that these diseases are akin, and that a fourth and still more terrific visitation is due about 1949 or thereabouts. I do not prophesy; I do nothing but point out the similarity between two things which, for all anyone knows, may be as far as the two poles asunder.

But once more I wish to emphasize the hysterical folly of fixing the dreadful name of plague on to this influenza. Let us thank our God that we shall never more be subject to that terror of the human race.

The Medical Journal of Australia.

SATURDAY, JANUARY 25, 1919.

The Need for Caution.

The present issue of this journal is devoted almost entirely to the subject of the pandemic known as pneumonic influenza, in order that the views, experiences and writings of many men may be contrasted and the various questions awaiting reply may be examined as critically as existing knowledge permits. The medical profession will be supplied at a later date with information by the Quarantine Service, when the investigations now proceeding are completed. It is possible that some or even all the problems requiring elucidation may be solved as a result of these investigations. It is possible that these researches may prove as sterile as those which have preceded them in other parts of the world. Writers with limited experience of the clinical aspects of the pandemic and of the work conducted in the laboratory have expressed opinions and at times have made positive assertions concerning the pathology and nature of the disease. The Medical Research Committee of the National Health Insurance in Great Britain, after a careful consideration of the facts collected from the many published records, has arrived at the conclusion that the causal organism of the disease is in doubt. The occasional discovery of Pfeiffer's *Bacillus influenzae* does not appear be constant enough to justify adhesion to the orthodox view formerly held that true influenza is due to this organism. From the careful observations of Oberndorfer and others it appears that the identity of the present outbreak and that of 1890-1892 is established without doubt. The point at issue is whether Pfeiffer's claim can still be substantiated. With the data available the verdict must be held in abeyance for the present. In parenthesis it may be mentioned that the evidence appears to be against the assumption that the influenza bacillus of Pfeiffer is the primary cause of the disease. It may be asked: What has the quarantine authority kept at bay at the several ports of Australia? We would

urge the utmost caution in any attempt to deliver a definite reply at the present time. If we are honest, we must admit that we do not know.

How has the quarantine authority kept this disease of unknown causation from gaining an entrance? In this respect, too, caution is needed before the medical profession should venture to offer a reply. The means that have been adopted are isolation, the wearing of face masks, spraying the throats of contacts, carriers of various germs, convalescent patients and suspects, and inoculation with certain bacteria. There appears to be a general consensus of opinion that the infection is spread directly from patient to patient, probably by means of droplets. It is held that the virus is not carried by the wind or otherwise, and consequently the risk of infection would be avoided if every patient suffering from the disease could be adequately removed from the healthy and susceptible. Isolation would thus seem to be the one ideal method of checking the spread of such a disease as that standing at our doors. Whatever may be the value of the other measures, there can be little doubt concerning the importance and reasonableness of isolation.

The second means adopted, that of the wearing of masks, is less easy to dispose of. For a mask to be efficacious in stopping the spread of infection it is necessary that it should be of sufficient density to prevent the facile passage of the causal organism through its meshes. Moreover, it would be more logical if the infected persons, the patients, were asked to wear the masks, for it must be assumed that virus passes from the patient to the healthy person through sprayed droplets in the acts of breathing, speaking and coughing. Since we do not know what the organism is, it is not possible to ascertain whether three or four layers of gauze suffice to hold them back when ejected from the infected person. It appears to us that this method cannot be of great value when worn by the uninfected person, for it at best protects only a very small surface of his body. The third means adopted is so empirical and so little amenable at present to rational tests that its actual value cannot yet be assessed. The last means employed has been both endowed with almost magic powers of prevention and damned as of no prophylactic value at all. In a wise leading article in *The Journal of the American Medical Association* of November 9, 1918, it is set forth

that "nothing can be learned as to its real value from indiscriminate vaccination of the public. The physician who, in view of the severity of the epidemic, feels that he is justified in vaccinating his patients, should be fair to them and protect himself by informing the patient that he regards the procedure as wholly of an experimental nature." The majority of the experts who have worked at the pathology and bacteriology of this affection, have concluded that the Gram-positive diplococcus, an organism scathingly designated by the Medical Research Committee as ubiquitous, the pneumococcus, *Streptococcus haemolyticus* and the *Micrococcus catarrhalis* are secondary infective organisms, and consequently it would appear that vaccination with these germs would not result in any protection against the disease. Information is still needed concerning the antibodies called into existence by these vaccinations before we can be informed whether this procedure diminishes the risk of fatal complications in persons infected. We have yet to learn whether the vaccine, if it be of value, offers better protection against the lung implication when applied before the primary infection or after it. Again, if the disease be due to the influenza bacillus of Pfeiffer, which is admittedly an indifferent antigen, would it not seem a vain hope to look for protection as a result of vaccination? And if the disease is caused by an undiscovered germ, vaccination with this organism, that probably is incapable of producing any antibody, would be useless, or even worse. We are still fishing in the dark concerning the value of inoculation with these mixed vaccines.

THE EPIDEMIC IN EUROPE.

The Medical Research Committee has published an exhaustive summary of the literature dealing with the influenza epidemic in Europe up to September, 1918. This summary contains full references to the publications appearing in the German journals and the findings and opinions of the chief workers in Europe are passed under review. It is pointed out that the extreme contagiousness of the affection has been proved to be due to aerial convection, by means of drop infection from person to person and not by transportation of the virus through the air at large. Influenza appears to have recurred many times at intervals of about twenty or thirty years. The last pandemic was in 1892, when R. Pfeiffer discovered the hemophilic *Bacillus influenzae* during the rerudescence of the disease. This organism was found in the sputum or nasal discharges, and at the time bacteriologists accepted the claim that it was the causal organism of influenza.

Pfeiffer's organism was shown to be practically non-pathogenic to animals and to be a very unreliable antigen. After the 1892 epidemic disappeared, localized outbreaks of an influenza-like malady occurred from time to time, and various attempts were made to explain the bacteriology of these infections. It was held, especially in Germany, that the endemic disease was distinct from influenza, and Scheller maintained that it was caused by an organism named by him *Diplococcus mucosus*. This organism was distinguishable from *Streptococcus mucosus*, *Pneumococcus mucosus*, *Micrococcus catarrhalis*, *Diplococcus crassus* and *Diplococcus flavus*. This organism was incriminated in connexion with an epidemic which broke out in Leipzig in 1916. In this outbreak hemorrhagic nephritis and menigitismus were noted, and the infection was supposed to be a true septicæmia. Early in 1917 Shera described a London outbreak of 1915. He claimed to have isolated a bacillus similar to Pfeiffer's bacillus in some of the cases.

In the winter of 1917 a very fatal purulent bronchitis occurred at the base hospitals in France, and Hammond, Rolland and Shore recorded the finding of Gram-negative cocco-bacilli, which they identified as Pfeiffer's bacilli, in 18 out of 30 specimens of sputum. This epidemic appears to have subsided as the summer approached, and an epidemic of pneumonia followed in September of 1917. The bacteriology of this outbreak was recorded by Hallows, Eyre and French. The organisms found were pneumococci and the influenza bacilli, the latter in a small proportion of cases.

Summing up the outbreaks of influenza-like infections which occurred in the three years 1915, 1916 and 1917 they find that the predominating organism was a diplococcus, while Pfeiffer's bacillus was found but occasionally.

Turning to the pandemic, the Medical Research Committee deal with the investigations by Little, Garofalo and Williams, who deny that it is identical with true influenza. They emphasize the facts that there were no relapses or complications observed in France, that there was a very slight leucocytosis, and that a Gram-positive diplococcus was in universal predominance. Gotch and Whittingham found influenza bacilli in 8% of 50 cases in the throat and sputum. In the remainder a Gram-negative diplococcus not unlike the *Micrococcus catarrhalis* was recovered. Diplococci were isolated from the blood in several of these cases. Influenza bacilli, or organisms indistinguishable from them, were isolated in three-quarters of the cases investigated by Krumbhaar, and, according to verbal reports from France, they were recovered from sputum of the French troops. Matthews found the same bacilli in about a dozen cases in London. Averill, Young and Griffiths dealt with a series of 1,439 patients. Pneumonia was observed in sixteen, and of these seven died. A bacteriological examination was carried out in 43 cases. *Bacillus influenzae* was not detected in the naso-pharynx, but a Gram-positive diplococcus was found in the sputum of 41 patients in the series. It was associated with a Gram-negative bacillus in 32 cases. The latter was identified as Pfeiffer's bacillus. The coecus was said to be a pneumococcus. Maude appears to have claimed a double infection with pneumococcus and

the Pfeiffer bacillus, but systematic bacteriological examination was not carried out.

Special meetings of the medical societies in Berlin and Munich were held for the purpose of ascertaining the nature of the pandemic disease. The pathological changes met with were compared with those found in organs preserved from the 1890-1892 pandemic. The following observers contributed to these discussions: Oberndorfer, Lubarsch, Schmorl, Bernhardt and Meyer, Simmonds, Hirschbruch, Dietrich, Bergmann, Selter, Gruber and Schädel. Oberndorfer found that the early lesions were small haemorrhages projecting into the lung tissue; these were followed by a firmer infiltration of the parenchyma, and subsequently pulmonary haemorrhage infarcts, with the base of the wedge-shaped lesion lying toward the pleura, were noted. In the second stage there was an exudative pneumonic process, combined with haemorrhages. True croupous hepatization of either lobular or lobar distribution occurred at times. The pneumonic foci were at times flattened out at the ends into yellowish infarcts. These lesions often went on to gangrene or to suppuration. The bronchi were filled with pus, and extensive bronchiectasis often followed. There was a striking hyperplastic condition of the lymphatic apparatus of the tongue and tracheal ring. The cervical and axillary glands were enlarged and the impression of a *status thymo-lymphaticus* was conveyed. Microscopically an exudation of fibrin was seen in the deep layers of the tracheal mucosa and a progressive infiltration of the tracheal walls. There was an enormous vaso-dilatation in the lymphatic glands, with haemorrhages and proliferation of the endothelium. In the lungs there was a leucocytic infiltration surrounding the alveoli, bronchi and the walls of the small arteries. Haemorrhages in the valves of the heart were also met with. The pathological process consisted in haemorrhages in the mucous and serous membranes in the respiratory tract and in the lungs, indicating a damaged capillary vascular system. The abscesses met with were of a haemogenous origin. It seemed to be primarily a bacteræmia, localized especially in the pulmonary blood vessels. The haemorrhages in the lungs paved the way for secondary infections.

Oberndorfer did not regard the bacteræmia as due to the influenza bacillus. Lubarsch discovered the influenza bacillus only once in the lungs. He held that if the primary cause of the infection proved to be Pfeiffer's organism, it was certainly not the usual cause of a fatal issue. Schmorl found streptococci and pneumococci in the majority of fifty patients, but never *Bacillus influenzae*. He reported a diphtheritic inflammation of the trachea and bronchi, but the diphtheria bacillus was absent. The same observer recorded the frequent occurrence of haemorrhagic encephalitis. It was recognized in 15 out of 44 cases. A bacillus resembling the influenza bacillus was discovered in two of seven brains affected, but Schmorl refused to attribute to this bacterium an aetiological significance. Simmonds and Dietrich isolated Pfeiffer's bacillus, both from the sputum and from the lungs post-mortem. The latter regarded the influenza bacillus as the primary cause of the lesions, although the fatal issue was due to secondary infections. Bernhardt and Meyer failed to find the influenza bacillus in any of their 28 cases. In the majority of the

cases a pure culture of diplo-streptococci was obtained from the lungs, the heart's blood, the spleen and the liver. This organism was regarded as a companion of some unknown primary agent. Bernhardt failed to discover the *Bacillus influenzae* from the mucus in the throat or from the sputum during life in 47 cases, but found the same diplo-streptococcus, almost in pure culture. He has named this organism *Diplococcus epidemicus*. Mandelbaum found several organisms in Oberndorfer's cases, but not the influenza bacillus. He came to the conclusion that none of the bacteria found were the primary organisms. Further, he found that since persons over 30 years of age were practically immune, and since it had been shown by Delius and Kolle that the bacillus of Pfeiffer was incapable of producing immunity, some other factor must be the cause of the infection. Selter failed to find the influenza bacillus, as did Kroner, Kisskalt, Friedemann, Kolle and Hirschbruch. On the other hand, Gruber and Schädel discovered it in 14 out of 250 cases, while the diplo-streptococcus was found in an overwhelming majority. Bergmann found both the *Bacillus influenzae* and the pneumococcus. R. Pfeiffer confined his observations to a short note, in which he recorded that the inconstant finding of his bacillus was still under investigation. Uhlenhuth claimed to have found *Bacillus influenzae* in not inconsiderable numbers in the sputum of patients. Suspicious bacilli were seen in 66% of the specimens in one series, and cultures were made in 13%. In a second series he recovered the bacillus in 46.8%. He advocated the method of symbiotic culture, associated with the name of Levingthal. He disagreed with Levingthal in regard to the alleged agglutination with specific sera of influenza bacilli grown on broken-down blood in a faintly alkaline agar medium.

In a general survey of the facts and opinions marshalled in the various laboratories of Europe, the Medical Research Committee arrive at the conclusion that the influenza bacillus appears to have been recovered much more frequently from soldiers in the battle zones than from civilians. They point to the interesting observation made in Budapest that the influenza bacillus is said to have been isolated in every case. Notwithstanding these two observations, they hold that the "cold logic" of the post-mortem room leaves no doubt that the bacillus of Pfeiffer does not play any more important part than does the ubiquitous diplo-streptococcus. The real virus, said to be invisible or a filter passer, on account of its unknown nature, remains to be discovered.

The Director of Quarantine kindly promised to prepare an article for publication in this issue of "The Medical Journal of Australia" dealing with the experience of the officers of his Department in connexion with pneumonic influenza. He has, however, informed us at the last moment that unexpected pressure of work has prevented him from fulfilling his promise.

We are gratified to learn that the Premier of Victoria has announced that a Bill to amend the existing apology for health legislation is to be introduced into Parliament next session. From the Premier's utterances it is anticipated that the new measure will be an up-to-date, rational piece of legislation and will endow the officials of the Department with all powers necessary to enable them to safeguard the health of the community.

Abstracts from Current Medical Literature.

PNEUMONIC INFLUENZA.

(28) Pathological Studies of Influenza in a Large Hospital.

J. W. Nuzum, I. Pilot, F. H. Stangl and B. E. Bonar (*Journ. Amer. Med. Assoc.*, November 9, 1918) have studied the clinical aspects and pathology of epidemic influenza on the basis of over 2,000 patients admitted to the wards of the Cook County Hospital, of Chicago. The case mortality was 31% and the age period of the highest mortality fell between 25 and 30 years. In regard to the clinical manifestations, they point out that the incubation period varied between a few hours and one or two days. Fifty-five nurses and twelve resident medical officers contracted the disease. Three of the nurses died. The onset was sudden, severe headache, pains in the muscles and joints and in the lumbar region and general weakness being the most usual initial symptoms. Rigors were noted early, and the temperature rose to from 38° C. to 40° C. The pulse became accelerated, as did the respiration. Epistaxis occurred frequently. The second to the fourth day marked the critical period. Later the temperature again rose and a slight bronchial cough developed. Small amounts of thick, yellow or yellowish-brown sputum were expectorated. The sputum teemed with Gram-positive encapsulated pneumococci. Physical examination revealed consolidation of the lower lobes, with scattered râles. The broncho-pneumonic process began as an intense hemorrhagic tracheo-bronchitis. In the fulminating cases there was severe cyanosis, and death resulted from an asphyxiative bronchiolitis, with large quantities of frothy, blood-tinged fluid exuded from the lungs. In the less acute cases the broncho-pneumonia spread gradually, and severe toxæmia manifested itself. There was a well-marked leucopenia. After death considerable quantities of fluid free from fibrin was found in the pleural cavities. There were petechiae and confluent hemorrhages in the pleura. The consolidation of the lungs was lobular in type and the peri-bronchial glands were swollen and edematous. Less regular changes were acute dilatation of the right side of the heart, bilateral symmetrical haemorrhage of the kidneys, passive hyperæmia of the pia-arachnoidal vessels over the cerebral cortex and oedema of the lepto-meninges. A bacteriological examination of the naso-pharyngeal, tonsillar and bronchial mucus and of the viscera and body fluids after death was carried out in a large number of cases. From the washed bronchial secretions a peculiar Gram-positive coccus, growing in greyish-white colonies and exhibiting marked pleomorphism, was frequently found. The coccus was non-pathogenic both to man and to the ordinary laboratory animals. The pneumococcus was found in 17% of the sputum specimens and

the influenza bacillus in 4%. *Streptococcus haemolyticus* occurred in 20%, while *Staphylococcus*, *Micrococcus catarrhalis* and *Bacillus mucosus capsulatus* were also found. From the fluid gained by lung puncture during life, the pneumococcus of Type IV. was found five times, that of Type III. three times, that of Type II. twice and that of Type I. once, while the haemolytic streptococcus was found three times and *M. catarrhalis* once. Similar results were obtained from the lungs post-mortem. In three out of 26 cases the influenza bacillus was isolated. In one case influenza bacillus was in practically pure culture in the lungs of a soldier who died on the fifth day of disease. The authors undertook certain experimental investigations. Washings from the nose and throat of a patient after filtration through Mandler filters failed to produce any definite illness in three volunteers. Similarly, the naso-pharyngeal washings from two cases, mixed, after filtration through a Mandler filter and through a small Berkefeld candle proved incapable of reproducing the disease in healthy volunteers. The filtered material, as well as the unfiltered suspension, yielded negative results in a *Macacus rhesus* monkey. They conclude that the disease is apparently not due to a filterable virus. The influenza bacillus was isolated in only 8.7% of all the cases. Pneumococci of unusual virulence were the most important early secondary invaders, and were responsible for many of the deaths from pneumonia.

(29) The Origin of the Pandemic.

A. Francis Coutant, writing from Zamboanga, in the Philippine Islands, states that, as far as can be determined, the epidemic of influenza began in Manila (*Journ. of the Amer. Med. Assoc.*, November 9, 1918). The first cases of the epidemic at Manila were noted in the month of June, 1918. About 300 patients came under observation. Reports from other parts of the Philippine Archipelago, Japan, Vladivostock and Spain, as far as the author is aware, fix the beginning of the outbreaks at a later date. On the other hand, there were between 30 and 40 cases of influenza, with at least one death, on a United States Army transport, which left San Francisco shortly before the epidemic appeared in Manila. When the transport arrived at the Philippine Islands the Manila epidemic was practically over. The course of the epidemic is given. No attempt was made at isolation, and, within three days of the appearance of the first cases between 70% and 80% of the longshoremen, clerks and dock-workers were unable to work. Shipping was consequently much delayed. Two days later the epidemic reached the business and residential portion of the city, and many firms were compelled to close their doors. Two of the newspapers had to be suspended for a day. The indulgence of the public in connexion with the telephone service was asked, because 90% of the operators were ill with influenza. Within ten days the

majority of those who had been ill, were well enough to return to work. The hospital remained overcrowded for two or three further weeks, and the last traces of the disease disappeared with the advent of the typhoon. The death-rate is given at 2% in the hospital, but the mortality is stated to have been lower in the city at large. The author quotes a communication from J. W. Johnson, who attributed the outbreak to Pfeiffer's bacillus.

(30) Phagocytic Experiments in Pneumonic Influenza.

R. Tunnicliff (*Journ. Amer. Med. Association*, November 23, 1918) has attempted to determine the relationship between influenza with the complicating pneumonia and the green-producing streptococcus isolated at Camp Meade. This microbe was separated from the sputum on the first or second day of the disease in 96 out of 110 patients. In 63 of the 110 patients the bacillus of Pfeiffer was isolated from the sputum. The streptococcus appeared in smears of sputum as a Gram-positive diplococcus with slightly pointed ends and a capsule. On human blood agar plates it grew in large, green, flat and moist colonies with regular borders. It fermented glucose, lactose and saccharose, but not mannite. Injected into the peritoneal cavity it killed mice in 24 hours. The streptococci did not agglutinate with type pneumococcal sera. The streptococci did not agglutinate with the sera of seven patients, even in a dilution of one in two. Opsonic experiments were then carried out with the use of *Micrococcus catarrhalis* and *Streptococcus haemolyticus* as controls. The opsonic power was estimated by the method of dilution. Tests were carried out daily upon four patients with influenza. The tests showed that the opsonic content against the green-producing streptococcus was normal on the first day but rose on the second and third days, remained high for a day or two and then fell to normal. In ten severe cases of pneumonia following influenza the serum showed little or no opsonin against this streptococcus. These changes were found to be specific, the controls revealing no fluctuations. The author also noticed a non-specific loss of phagocytic power in the corpuscles of the patients in the leucopenia of influenza. It is suggested that this loss of phagocytosis accounts for the frequency and severity of complications.

(31) Observations Upon Influenza.

B. Fantus records some clinical observations upon the pandemic of influenza in Chicago (*Journ. Amer. Med. Association*, November 23, 1918). He comments on the sudden flaring-up and equally sudden decline of the disease. Among those who escaped, were few who could not recall a running nose, a raw feeling in the throat, a cough or aches and pains. The author considers that the wearing of face masks had no greater prophylactic effect than the liberal consumption of whisky or

the traditional bag of camphor hung around the neck. In support of this view he instances the frequency with which nurses, who were especially given to wearing masks, became victims of the infection. He says that face masks were useful in protecting others against infection by the spray from the mouth of the wearer. The average duration of the disease in uncomplicated cases was three days. The symptoms were multiform. Broncho-pneumonia was the most serious complication. From his personal observations the author concludes that the occurrence of pneumonia was due to inability or unwillingness of the patient to stay in bed long enough or thoroughly enough. He considers that the failure to insist upon treatment in bed until the patient had had no fever for two or three days, was the cause of the mortality. In regard to therapy the author lays stress on the value of coal-tar derivatives in lowering fever. Opiates were of use in easing pain, but the author states that much of the mortality was due to the employment of opiates, which induced the patient to leave bed too early, whereupon a relapse, with fatal consequences, occurred.

(32) Influenza at Camp Dix.

M. J. Synnott and E. Clark describe the influenza epidemic at Camp Dix, New Jersey, between September 15 and October 6, 1918 (*Journ. Amer. Med. Association*, November 30, 1918). There were roughly 6,000 cases of disease, with 800 deaths. The usual history was one of gradual onset, lasting four or five days. Occasionally the disease set in suddenly, sharply and severely. On admission there was cough, often with rusty sputum, a temperature of 37.8° C., respirations of 28 or 30 and a pulse-rate of 80 to 120. One-third of the cases showed frank signs of pneumonia. Toxæmia characterized the serious cases. The outcome of each case could be predicted almost from the first inspection. In the serious cases cyanosis developed early. Patients with marked cyanosis died promptly. Empyema occurred in twenty patients. Early operation was not considered advisable. The treatment was symptomatic. Serum was given to patients from whom Type I. pneumococcus was isolated in the laboratory. Lumbar puncture was employed in cases with nervous symptoms, since necropsy showed much meningeal infection with pneumococci. Prophylactic inoculation with pneumococcal vaccine was used in the camp. The reactions with it were slight. Routine bacteriological examinations were made upon all cases suffering from pneumonia. Streptococci and pneumococci have been frequently found. The *Bacillus influenzae* has been often found in the sputum, bronchi and lungs, but in no instance has been the sole invading microbe.

(33) Morphology of Pandemic Influenza:

D. Symmers invites attention to the similarity of the pathological changes in the lungs between the pneumonia of bubonic plague and of pandemic influenza (*Journ. Amer. Med. Association*,

November 2, 1918). He has had occasion to investigate by necropsy twenty cases of death from pneumonia occurring in the course of the epidemic of pneumonic influenza. The changes in the lungs that he has noted are those of a variety of confluent lobular exudative and haemorrhagic pneumonia in which the macroscopic and microscopic features bear a close resemblance to the lesions of pneumonic plague. He is of opinion that there are some features which separate the two diseases on anatomical grounds, but that, in those cases in which these specific characters are not present, it would not be possible to distinguish the condition from that of pneumonic plague without the aid of modern bacteriological conditions. To anticipate criticism he mentions that the pneumonic variety of plague is seldom accompanied by those bubonic manifestations from which plague takes its name. The extent and distribution of the thoracic and abdominal adenopathies are similar in both diseases. The author remarks that, however impressive these observations may be, it is comforting to recall that *Bacillus pestis* has found no place among the microbes separated by many able bacteriologists. The pleural cavities have been free from accumulation of fluids and from pleuritic inflammation in all the uncomplicated cases examined which have not been complicated by previous pulmonary disease. The naked eye appearances of the lungs may be grouped for descriptive purposes into those of lungs with extensive confluent lobular solidification of the lower lobe, with circumscribed consolidation of the lobules of the upper lobe and with areas of acute vesicular emphysema, of lungs with almost complete solidification of both lungs and of lungs in which the pneumonic process is subsiding. The first group contains the acute cases, in which rapidly fatal pneumonia has occurred. The lower lobes are always involved together. The inflammatory area presents a deep, slate blue colour, mottled by slightly elevated pink patches and by areas of vesicular emphysema. Petechial hemorrhages and larger splotch-like extravasations are constantly present. On section the lungs cut readily. The surface is smooth, and exhibits not a trace of fibrin. Microscopically the alveoli are found filled with red cells and polynuclear leucocytes. Sometimes coagulated serum is present, but fibrin is absent. The upper lobes show areas similar in appearance to those of the lower lobes, and are surrounded by emphysematous patches. The author states that these appearances are exactly those observed in the pulmonary changes of bubonic plague. In the cases with a longer history of illness there has been almost complete consolidation. In one case the pneumonic process had almost subsided. The upper lobes were emphysematous, while the lower lobes had been congested, but exhibited two or three areas of solidification. From these areas a semi-purulent fluid could be squeezed. The author also records the degenerative changes in the cardiac muscle. As he considers that these myocardial changes

indicate the early use of stimulants, he suggests radiological examination for the early diagnosis of the pneumonia.

(34) The Morphology of Pfeiffer's Bacillus.

In 1893 R. Pfeiffer described a true influenza bacillus and pseudo-influenza bacillus. The distinction between these two forms depended on the fact that the former appeared as small bacilli, with a few longer forms after culture, while the latter grew into long, thread-like organisms. Gladys Henry Dick and Eleanor Murray (*Journ. Amer. Med. Assoc.*, November 9, 1918) report that the bacteriological examination of the sputum, blood and lungs during the present epidemic has brought to light both forms of bacilli. The long, thread-like form appeared in the blood-culture of a patient whose sputum contained the same type of organisms. In order to determine whether there was any essential difference between the true and the pseudo-organism of Pfeiffer, they prepared media by adding human blood to a series of tubes containing agar, which, after sterilization, titrated 1.5, 1.0, 0.4, 0.2 acid, neutral, 0.2 and 0.7 alkaline, expressed in percentages of normal sodium hydroxide with phenolphthalein as indicator. The different strains were inoculated into these tubes. Three strains with thread-like forms corresponding to the Pfeiffer's pseudo-bacilli showed long threads in the more acid media, but only short bacilli in the 0.2 acid and neutral tubes. The four strains that grew in the original cultures as small bacilli, showed transitions up to the thread-like forms on the more acid media. They therefore conclude that there is no justification to regard the leptostrix form as distinct from influenza bacilli.

(35) The Treatment and Prevention of Pneumonic Influenza.

In the course of an article headed "Notes on the Present Epidemic of Respiratory Disease" (*Journ. Amer. Med. Association*, November 9, 1918) S. Strouse and Leon Bloch, after describing the signs and symptoms and clinical picture, point out that the mortality among the patients treated at the Michael Reese Hospital, at Chicago, was 17%, while among the personnel it affected it was 2.8%. The bacteria recovered from the sputum, throat, nose, pleura and blood included the influenza bacillus in 5.5% among 273 cases, pneumococci in 32%, streptococci in 65.4%, staphylococci in 46% and other organisms in isolated cases. The *Streptococcus viridans* was the only organism grown from the blood, while *Streptococcus viridans* and pneumococcus were obtained from pleural exudate. They point out that prophylactic vaccination is of unknown value. They quote three instances in which the disease follows three inoculations, and over 20 instances in which it followed one or two inoculations. They maintain that there is no specific treatment of value. The serum of a person convalescent from influenza failed to prevent a fatal termination in an acute case. They hold the opinion that symptomatic treatment yields the best results.

Medical Societies.

(Affiliated with the British Medical Association.)

THE WESTERN MEDICAL ASSOCIATION OF NEW SOUTH WALES.

The annual meeting of the Western Medical Association was held at Wellington, New South Wales, on December 6, 1918, Dr. J. Brook Moore, the President, in the chair.

The annual report and balance-sheet were presented and adopted.

The following were elected office-bearers and members of the committee:—

President: Dr. E. H. Burkitt (Dubbo).

Vice-President: Dr. R. S. Candlish (Cowra).

Members of the Committee: Drs. P. L. Broadbent, H. Busby, F. Challands, W. Daish, C. B. Howse, H. McLaren, R. T. Michell, H. Peet, A. Smith-Marr, B. G. Wade, A. S. Walker and J. H. Wilson.

Honorary Secretary and Treasurer: Dr. J. T. Paton (Millthorpe).

Honorary Auditor: Dr. E. M. Ramsden (Bathurst).

Delegate to Annual Meeting with Council of New South Wales Branch: Dr. J. T. Paton (Millthorpe).

Representative on Council of New South Wales Branch: Dr. E. H. Burkitt (Dubbo).

General Sir Neville Howse, V.C., K.C.B., a past-President of the Association, was warmly welcomed and congratulated by the meeting. He was unanimously elected a life-member of the Western Medical Association. In acknowledging the welcome and action of the members, General Sir Neville Howse said that the success of the Australian Army Medical Corps was due to the loyal support he had received. He referred at some length to the brilliant work of all branches of the Australian Army Medical Corps—nursing, medical, dental and pharmaceutical—and lamented that he did not possess the bravery of his stretcher-bearers. He spoke very feelingly of the death in action of one of his best young officers, a former member of the Western Medical Association, and a practitioner of the town in which the meeting was being held. He condemned strongly the attitude of many Australian medical men who were physically and mentally fit, but had not fulfilled their duty to their country. As this opportunity and privilege had gone by, he exhorted one and all to assist in every possible way the repatriation of Australian soldiers.

Dr. A. H. Tebbutt, of Sydney, read papers on the Wassermann reaction and on pandemic influenza. The papers were greatly appreciated, and a hearty vote of thanks was accorded to Dr. Tebbutt.

The visiting members were entertained at luncheon by the Wellington members.

The following have been elected members of the Victorian Branch of the British Medical Association:—

G. H. Brandis (M.B., Ch.B., Melb., 1918), 32 Richardson Street, Essendon.

John Noel Brown, 23 Park Street, East Brunswick.

Bertram C. Cohen, Ormond College.

Alfred Plumley Derham (M.B., Ch.B., Melb., 1918), 83 Wellington Street, Kew.

William Joseph Flanagan (M.B., Ch.B., Melb., 1918), 31 Acland Street, St. Kilda.

John Ellis Gillespie (M.B., Ch.B., Melb., 1918), Chesterfield, Malvern.

William Heiland Godby (M.B., Ch.B., Melb., 1914), Alfred Hospital.

Alfred William Harley (M.B., Ch.B., Melb., 1918), 19 Mayfield Avenue, Windsor.

James Gordon Hislop, 4 The Avenue, Windsor.

Henry Franklin Little (M.B., Ch.B., Melb., 1918), 29 James Street, Northcote.

Harold Isaac Robinson (M.B., Ch.B., Melb., 1918), Melton.

Hillary Joseph Roche (M.B., Ch.B., Melb., 1918), "Upton Grey," Torrresdale Road, Toorak.

Albert William Shugg (M.B., Ch.B., 1918), 56 Charles Street, Kew.

Hans Stubbe, 521 Punt Road, South Yarra.

Henry Charles Varley (M.B., Ch.B., Melb., 1918), Infectious Diseases Hospital, Fairfield.
Ivan Meyer Wartzki (M.B., Ch.B., 1918), 2 Kelvin Grove, Armadale.

MEDICAL WORK IN THE VICTORIAN SCHOOLS.

The report of the Minister of Public Instruction of Victoria, dealing with the activities of his Department during the year which terminated on June 30, 1917, bears the date of July 23, 1918. We have just received a copy. The report is a document of 40 pages. In his general report the Minister does not even refer to the health of school children or the medical activities of his Department, subjects which, we contend, are of considerably greater importance to the nation than education. While we recognize that economy should be exercised in the preparation and publication of departmental reports, we are strongly of opinion that parsimony is undesirable. The cost of printing 1,000 copies of the report is given at £38. We venture to suggest that the expenditure of another £10 or £15 for the purpose of enabling the medical officers to give a fuller record of their work and of its limitations would not only have been justifiable, but would represent economic expenditure.

The School Medical Officers, Dr. Jane S. Greig and Dr. Eileen Fitzgerald, have undertaken during the year under review the medical inspection of the school children attending twelve metropolitan elementary State schools, two metropolitan Roman Catholic elementary schools, two provincial schools, six special schools and 30 high schools. In addition, teachers were examined at the Teachers' College, at the Domestic Arts Hostel and at the Summer School. It is estimated that the number of pupils under instruction in the Victorian State schools during the year 1916-9117 was 225,370, that the number at the technical schools was 2,250, and that the number of pupils at private schools was 56,193. It appears, however, that the estimated number of children of school age under instruction in the State was 222,888. The Department expects two medical officers to be responsible for the supervision of the health of all these children. The war is responsible for the diminution of the size of the medical staff from four to two. If the Government of Victoria made an effort to meet its obligations to the young citizens of the State, 26 additional medical officers would immediately be appointed. By this arrangement, each medical officer would be responsible for the medical inspection of 4,000 children each year, so that every child would have at least four medical inspections during its school life. As it is, the excellent School Medical Officers accomplish much work in and out of school and office hours. The children at the elementary schools in the more congested industrial suburbs are examined every third year. They also conduct a medical examination at the open-air schools, at the schools for the mentally deficient, at the school for the deaf and dumb, at the school for the blind and at the school for epileptic children.

Emphasis is laid on the better results in the treatment of the high school pupils than in that of the pupils in the elementary schools. This is explained in part by the fact that many of the pupils in the high schools are trained for positions as junior teachers. No appointments are made unless defects of vision, hearing or dentition are remedied. The discovery of an incurable defect, such as a valvular lesion of the heart, is communicated to the parents, in order that some occupation other than teaching may be selected for the child. It is stated that, in spite of careful medical examination, a certain number of these children prove themselves later to be unsuited for the calling of teacher. In many of these young persons a nervous defect manifests itself. It is suggested that highly nervous individuals should be excluded from the teaching service, as they are temperamentally unsuitable. The co-operation of the principals and teachers at the high school is desired for the purpose of the early detection of the "mentally unstable." It would seem to us, however, that the problem is, in fact, a portion of the problem of the mentally deficient, to which we have called attention on many occasions. The average school medical

officer, or, indeed, the school medical officer with unusual attainments, is rarely competent to undertake the task of detecting high grades of moronity without special neurological training. Moreover, the examination of the mental capacity and of the nervous stability of school children is, in itself, so arduous that the school medical officers, whose duties include the physical examination of a large number of children, is not in the position to carry it out.

The total number of children examined was 8,607, of which 6,465 were scholars at the elementary schools and 2,142 were scholars at the high school.

Among the 6,923 elementary school children, 747, or 10.8%, had defective vision; 544, or 7.9%, had defective hearing; 862, or 12.5%, had pathological conditions of the nose and throat; 3,694, or 53.4%, had dental defects; 810, or 11.7%, had *pediculosis capitis*; 271, or 3.9%, were suffering from anaemia; 172, or 2.4%, were suffering from affections of the skin; 26, or 0.4%, had cardiac lesions; and 2, or 0.03%, had some affection of the lungs. Of the 2,142 children attending the high school, 154, or 7.2%, had defects of vision; 95, or 4.4%, had defects of hearing; 119, or 5.5%, had enlarged tonsils or adenoid vegetations; 1,129, or 52.7%, had dental defects; 102, or 5.2%, were suffering from anaemia; 15, or 0.7%, had cardiac defects; 6, or 0.4%, had some skin affection; and 2, or 0.9%, had herniae.

In the case of 2,301 elementary school children, the parents were notified of the necessity to have the defects remedied. In 950 cases action was taken by the parents. This represents 41.3% of the total number of notifications.

It is reported that in many children the results of the treatment of dental and other physical defects are discovered at the first medical examination. This was a rare occurrence but a few years ago. Cleanliness and attention to general hygiene have also become more evident. The school inspectors report that there is a marked improvement in the posture of the children. Physical training was introduced in 1911, and acted beneficially, not only as a direct agent, but also by awakening a spirit of observation and care in the teachers. They recognize, further, that correct lighting in the schoolroom has had a considerable influence on the posture assumed by the children at their desks.

Reference is made to the first Australasian Medical Conference of School Medical Officers, which was held in December, 1916. Some of the more important resolutions adopted at this conference are recited in the report.

Medical Examination of Women Teachers.

The examination of candidates for appointment as teachers and of teachers on sick leave has been undertaken by the Medical Officers of the Department. As there are no male School Medical Officers at present, only the female teachers benefit by this arrangement. The total number of teachers examined was 289, of whom 186 were accepted, five were rejected and 98 deferred. Defective hearing was discovered in seven, defective vision in 12, carious teeth in 42, goitre in 13, organic heart disease in one, anaemia in 22, dysmenorrhoea in 36, and "other defects" in 30. The object of deferring candidates was to give them an opportunity to have remediable defects treated. In the majority of cases the individuals were accepted for public service at the second examination. They point out that the advantages of insisting on treatment being carried out are not only individual, but affect the Department as well, since good health in the teacher means more efficient service and less frequent absence owing to sickness. Reference is made to the necessity of keeping candidates and pupils suffering from enlargement of the thyroid gland under observation. A simple goitre does not, as a rule, affect the general health, but when goitre is associated with nervous symptoms and other signs of hypersecretion, a very different condition presents itself.

All teachers on leave on account of ill-health are examined when the leave exceeds one month. During the year 196 teachers were examined. Of these, 9 were suffering from pulmonary tuberculosis, 5 from exophthalmic goitre, 5 from insanity, 35 from hysteria, neurasthenia or nervous breakdown, 33 from surgical affections, 19 from infective diseases, 6 from the results of accident and 84 from "other causes." It is reported that three teachers suffering from Graves's disease were treated by a specialist by operation and within six weeks regained their utility as teachers.

The School Nurses.

Two nurses are employed by the Department for the purpose of following up the children found at the inspection to be suffering from physical defects. The nurse in Port Melbourne and South Melbourne paid 2,200 visits and the nurse in Collingwood paid 1,996. Many children were taken by the nurse to a hospital for the treatment of dental or other defects. After the medical inspection has been carried out, a printed notice is sent to the parents of children in whom the medical officers discovered defects calling for treatment. The result has been that from 30% to 35% of the children requiring treatment have received it. After the visit of the nurse the proportion of those who receive treatment increases very materially, and, after repeated visits, it has been found that between 80% and 90% of the children notified have been treated. The nurses have also done useful work in connexion with the open-air school and the school for sub-normal children. At first the nurse may have difficulty in obtaining the confidence of the parents, but with tact and persistence she usually overcomes these difficulties and her advice is followed.

The bush nurses undertake the work of school nurses in 22 districts, under the guidance of the school medical officer. The bush nursing centres receive aid from the Government in the form of a subsidy.

The Open-Air School.

The open-air school at Blackburn is the first of its kind that has been instituted in Australia. It was opened on June 9, 1915. The school is situated about 16 miles from the heart of Melbourne, in a block of about one half of an acre, surrounded by wooded country. The pupils are recruited largely from Richmond, and undertake the journey by train, the transit occupying about 35 minutes. They have a short walk from the station. The school building is simple. There is a solid wall, to which are attached the blackboards, while the other three sides have a wooden enclosure to a height of three feet from the floor. Canvas shutters, which can be shut or opened at will, act as a wind and rain-resisting screen. The Medical Officers do not approve of the screen, as it is said to interfere with the open-air principle. No bathroom has as yet been provided. The school is constructed to accommodate 25 children. It is placed under the charge of a competent and experienced teacher. The first children admitted were between the ages of 10 and 14 years, and all were suffering from anaemia or malnutrition. The programme includes 15 minutes of physical drill, 15 minutes occupied in food and toothbrush drill, 45 minutes of lessons, 15 minutes for play and 15 minutes for rest, 55 minutes for lessons, 35 minutes for toilet and lunch, one hour for rest, 35 minutes' lessons, 15 minutes for games or physical drill and 45 minutes for lessons or singing. Weight is taken twice a week. The cost of the food supplied to the children is 1s. 2d. per week. The parents pay 1s. 3d., but in the case of the necessitous, the payment is remitted. The parents also pay the railway fares, amounting to 1s. 2d. per week.

The medical officers point out that the results obtained at the open-air school were not as good as they had anticipated. There was no striking gain in weight, and in no case did the anaemia disappear or even show marked improvement. On the other hand, the children became more energetic, and appeared stronger, brighter and happier. The question is raised whether it is sufficient to place these children for six hours a day in pure air, while for the remaining 18 they are kept in baneful surroundings of city air, overcrowded dwellings and stuffy bedrooms. It is suggested that the anaemia may be dependent to some extent on carious teeth, and it is also suggested that the extra travelling to and from the school may not be immaterial to the health of the little ones. The Medical Officers are alive to the possibility that many cases of anaemia may be due to latent tuberculosis or congenital syphilis. They fear to apply the von Pirquet or the Wassermann tests, lest they should thereby antagonize the parents. It appears to us, however, that the detection of these two infections is so important that obstacles of this kind should not be allowed to stand in the way. It is early days yet to form conclusions as to the value of the school as it is being managed at present. It will probably be advisable in later years, when money is again available for the development of sound schemes for the benefit of the civil population, to convert

the school from a day school into a boarding school, where anaemic and weakly children would derive great benefit during the course of six months or a year.

The Feeble-Minded.

Part of the duties of Medical Officers is to examine every pupil at the special school for the feeble-minded at Bell Street, Fitzroy. This examination was carried out, and the results are tabulated in a special report. It will be noted that the control of these mentally defective children at the school only touches the fringe of one of the most important problems the State has to deal with. The children at the Bell Street School are handicapped by obvious mental defects. It is an excellent institution, and serves a very useful purpose. Unfortunately, there is no machinery whereby the high grade moron throughout the community can be detected and transferred from the ordinary schools to this or similar institutions. It is also unfortunate that the legislature is so blind that it has not yet recognized the necessity of continuing the control of these individuals after they reach puberty. We venture to think, however, that a reform will be effected in the near future.

The nutrition of the children attending at the Bell Street School is said to be about 25% below the standard. No less than 22% of the children had marked visual defects or stabismus. Carious teeth, pyorrhea and unhealthy mouths were detected in 73% of the children, while rickets was found in nearly half of them and produced some bony deformities in about one-third. In 13.5% of the children the speech was markedly defective. It appears that 44 children were examined. In five there was a history of mental deficiency in other members of the same family, while one child was an epileptic and one child was suffering from obvious congenital syphilis. The mental ages of the 44 children have been determined by means of a modification the Binet test and the Porteus test (we have noticed that there is a tendency to mis-spell Mr. Porteus' name by the addition of a gratuitous "o"). The medical officers point out that there is apparently a parallelism between the mental age, the strength of the manual grip and the vital capacity.

The School for Deaf-Mutes.

There is a school associated with the Deaf and Dumb Institution, at which a number of children bereft of the sense of hearing, and consequently dumb, receive their education. The majority of the children are transferred to this school at about the age of 12, instead of having the full advantage of the expert teaching from the age of six. During the course of the year the School Medical Officers subjected 94 of these children to a routine medical examination. They record the general results of their investigations. The children are said to be clean and well cared for, and the personal hygiene is said to be excellent. The majority of them had a heavy walk and dragged their feet, while their breathing was unusually noisy. A large number of the children had defective vision, while in 19 it was $\frac{1}{10}$ or less. Retinoscopy was not employed in these tests. Nasal defects were common, and included enlargement of the inferior turbinated bones, nasal spurs and deflected septa. A history of measles, scarlatina and meningitis was obtained in 78% of the children. Rickets was common, but only one child showed signs of congenital syphilis. Three were the children of congenitally deaf parents, while in 20% of them one or more members of the family were similarly affected. Nine of the children were definitely feeble-minded and 14 were very backward. There is a grave disadvantage to the admission of a mentally deficient child to a school for deaf mutes. It is bad for the other inmates, it imposes an extra burden on the teachers and the deficient children themselves do not reap any benefit. The majority of the scholars live in the institution, although some of them are daily pupils, and some return to their homes at the end of each week. The School Medical Officers hold the opinion that daily pupils have distinct advantages over resident pupils, largely resulting from a freer association with persons with normal hearing. It is stated that the vocabulary of the daily pupils was more extensive and was richer in colloquial phrases. It would appear to us that the gain or loss would depend very largely on the character of the children's homes and on the intelligence of the adult population in those homes. The headmaster of the institution, besides being an enthusiastic and sympathetic teacher, is an artist, and the pupils benefit materially by

this fact. The boys receive regular instruction in boot-making and carpentry, but the girls are not trained in any domestic work, save bread-making, table setting and household mending.

The Talbot Colony for Epileptics.

In the year under review the first systematic inspection of the children at the residential school at the Talbot Colony for Epileptics was carried out. The school has accommodation for 28 children, and the schoolroom is said to be much too small for this number of normal children. It can easily be imagined that such a small room is quite inadequate for a population of epileptics, whose seizures are often of daily occurrence. In addition, the Medical Officers point out that there is no room for manual work, and they claim that this provision is a necessity. A history of insanity or epilepsy was obtained in respect of eleven children. The children are said to be very well cared for, with the exception of their mouths, which are in a neglected condition. Arrangements have been made for the weekly attendance of an honorary dentist. As is usually the case among epileptics, cerebral retardation was common; seventeen of the children are said to be feeble-minded. No definite industrial training is given to the children, although some of them are taught to make dolls' furniture and raffia baskets. The medical officers call attention to the large problem of the proper care of the epileptic and the means available for increasing their utility as human beings. It is estimated that epilepsy occurred in one out of each 500 individuals of the community. The school population of Victoria embraces over 240,000 children. They point out that, while there must be nearly 500 epileptic children, public and private generosity provides for only 28.

The School for the Blind.

There is a school associated with the asylum for the blind, at which 24 children were housed, either as weekly or as permanent boarders. In regard to the cause of the blindness, the Medical Officers found obvious evidence of congenital syphilis in five and a history of probable gonorrhoeal ophthalmia in infancy in another five. It is probable that the incidence of venereal disease as a cause of blindness among these children is greater than the ratio of 10 to 24, since no Wassermann tests were carried out and some of the information was dependent on the history elicited from the parents. It is shown that heredity also plays an important part in the production of the defect. In about one-third of the children the hearing was defective, while bad teeth were almost universal. Incorrect posture, curious facial contortions and muscular twitchings were common among the children, probably arising as a result of their inability to gain a clear conception of their personal appearance. Children are taught the Braille system, and learn this, as well as manual work, with extraordinary rapidity. The Medical Officers plead for a wider use of this excellent institution.

Truants.

The School Medical Officers were requested to examine and report upon truants and children who had been absent from school for long periods, or who had been irregular in their attendance. In all, there were 154 of these children. They discovered that the absence from school was accounted for by some physical defect in 141 out of the 164 children, and that in only 23 was the charge of truancy really justified. They instance a number of cases in which the child's inability to hear or to see led to a violent dislike to his school, to inattentiveness and to a desire to escape from its burdens on every possible occasion. In 18 of the children there were signs just warranting the diagnosis or the suspicion of tuberculosis. These children were exempted from attendance at school, as were other children who were found to be affected with cardiac lesions, chorea and certain nervous affections. Two children were referred to the blind asylum and four to the deaf and dumb institution. Optional attendance, with exclusion from certain classes, was advocated for 23 children suffering from asthma, epilepsy, rheumatism and bodily deformities. There were 17 cases of mental deficiency, 37 of defective vision and 35 of marked defective hearing. Many difficulties presented themselves in the endeavour to find a proper method of dealing with these children. In some cases the parents persistently neglected to subject their children to medical treatment, even after the repeated and urgent

warnings of the medical officers had been given. It is felt that the provision of special classes for backward and for afflicted children would remove many of the difficulties.

THE WALTER AND ELIZA HALL INSTITUTE OF RESEARCH IN PATHOLOGY AND MEDICINE.

Among the advertisements inviting application from medical practitioners for vacant medical positions will be found a notice dealing with the appointment of Director to the Walter and Eliza Hall Institute of Research in Pathology and Medicine and of First Assistant. This institution is one of great importance to the progress of medicine in Australia. Its establishment marks the endeavour to place research work on a proper basis. The institution itself has been erected at a cost of over £12,000 in the grounds of the Melbourne Hospital. It is controlled by a Board representing the Trustees of the Walter and Eliza Hall Fund to whose generosity it owes its existence, the University of Melbourne and the Melbourne Hospital. The responsibilities attaching to these positions are great, and we anticipate that there will be considerable competition for them. The qualifications for the Director and the First Assistant have not been defined, but proved capacity for research is an essential. The Board inclines to favour a Director with special training in physiology and chemistry, and a First Assistant with a special training in bacteriology. Full information may be obtained on application to the Secretary of the Melbourne Hospital, or to the Registrars of the Universities of Sydney, Brisbane, Adelaide and Otago.

Public Health.

NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the week ending January 11, 1919:—

| | Metropolitan | | Hunter River | | Rest of | | Total. |
|--------------------|--------------|-----------|--------------|-----------|---------|-----------|--------|
| | Combined | District. | Combined | District. | State. | Cs. Dths. | |
| Enteric Fever | 3 | 0 | 5 | 0 | 7 | 0 | 15 0 |
| Scarlatina | 4 | 0 | 1 | 0 | 10 | 0 | 15 0 |
| Diphtheria | 40 | 0 | 13 | 0 | 32 | 0 | 85 0 |
| *Pul. Tuberculosis | 18 | 8 | 0 | 14 | 2 | 32 | 10 |
| C'bro-Spl' Menin. | 0 | 0 | 1 | 0 | 0 | 0 | 1 0 |

* Notifiable only in the Metropolitan and Hunter River Districts, and, since October 2, 1916, in the Blue Mountain Shire and Katoomba Municipality.

VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the week ending January 12, 1919:—

| | Metro- politan. | | Rest of State. | | Total |
|------------------------|--------------------|-------|-------------------|-------|-------|
| | Cs. | Dths. | Cs. | Dths. | |
| Enteric Fever | 6 | 0 | 7 | 0 | 13 0 |
| Scarlatina | 18 | 0 | 22 | 0 | 40 0 |
| Diphtheria | 44 | 0 | 57 | 0 | 101 0 |
| Pulmonary Tuberculosis | 24 | 4 | 8 | 2 | 32 6 |
| Puerperal Fever | 2 | — | 1 | — | 3 — |

QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending January 11, 1919:—

| Diseases. | No. of Cases. | |
|------------------------|---------------|-------|
| | Cs. | Dths. |
| Enteric Fever | .. | 16 |
| Scarlatina | .. | 7 |
| Diphtheria | .. | 31 |
| Pulmonary Tuberculosis | .. | 6 |
| Erysipelas | .. | 4 |
| Poliomyelitis | .. | 1 |

SOUTH AUSTRALIA.

The following notifications have been received by the Central Board of Health, Adelaide, during the fortnight ending January 6, 1919:—

| | Adelaide. | Rest of State. | Total. |
|-------------------------|-----------|-------------------|-----------|
| | Cs. Dths. | Cs. Dths. | Cs. Dths. |
| Enteric Fever | 0 0 | 8 0 | 8 0 |
| Scarlatina | 1 0 | 18 1 | 19 1 |
| Diphtheria | 1 0 | 35 3 | 36 3 |
| Pulmonary Tuberculosis | 3 4 | 12 6 | 15 10 |
| Erysipelas | 2 0 | 1 0 | 3 0 |
| Morbilli | 0 0 | 100 0 | 100 0 |
| Pertussis | 2 0 | 17 0 | 19 0 |
| C'bro-Spinal Meningitis | 1 0 | 0 0 | 1 0 |
| Puerperal Fever | 0 0 | 1 0 | 1 0 |

WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the week ending January 4, 1919:—

| | Metro- politan. | Rest of State. | Totals. |
|------------------------|--------------------|-------------------|---------|
| | Cases. | Cases. | Cases. |
| Enteric Fever | 5 | 2 | 7 |
| Scarlatina | 8 | 7 | 15 |
| Diphtheria | 9 | 14 | 23 |
| Pulmonary Tuberculosis | 4 | 0 | 4 |
| Erysipelas | 2 | 0 | 2 |

TASMANIA.

The following notifications have been received by the Department of Public Health, Tasmania, during the week ending January 11, 1919:—

| Diseases. | Hobart. | Laun- ceston. | Country. | Whole Cases. |
|------------------------|---------|------------------|----------|-----------------|
| | Cases. | Cases. | Cases. | Cases. |
| Enteric Fever | 0 | 0 | 6 | 6 |
| Scarlatina | 2 | 0 | 0 | 2 |
| Diphtheria | 3 | 2 | 10 | 15 |
| Pulmonary Tuberculosis | 2 | 1 | 3 | 6 |
| Ophthalmia Neonatorum | 0 | 0 | 1 | 1 |

THE DEATH OF MAJOR SETON.

It is our painful duty to record the death of Miles Charles Cariston Seton, a Major in the Australian Army Medical Corps. He was a graduate of the Edinburgh University of 1900, and practised in Collins Street, Melbourne. He held the position of Honorary Anaesthetist at the Alfred Hospital. He was shot at the house of his cousin in Holland Park, London, on January 13, 1919, by Lieutenant-Colonel Norman Cecil Rutherford, D.S.O., M.B., Ch.B., Edinburgh, 1903, F.R.C.S., England, 1909. Lieutenant-Colonel Rutherford, who is a Demonstrator of Anatomy and Lecturer on Embryology at the London Hospital Medical College, is under arrest, charged with the murder.

Special Correspondence.

(By Our Special Correspondent.)

LONDON LETTER.

King Edward's Hospital Fund.

The annual meeting of the Governors and General Council of King Edward's Hospital Fund for London was held at St. James's Palace on May 14, the Speaker of the House of Commons being in the chair. The Honorary Treasurer, Lord Revelstoke, in presenting the accounts and balance sheet for 1917, said that again the Fund had been able to make a substantial increase in the distribution, and also to add to its reserves. If the ordinary income showed no decrease, the Fund should be able to maintain the distribution this year at or near the total arrived at in 1917.

The accounts were adopted.

The draft report of the Council showed that the total receipts for the year were £238,572, of which £1,518 were contributions to capital and £237,054 receipts on general account.

The grants made for the year amounted to £190,000, being

£20,000 more than in 1916 and £32,500 in excess of the grants made in 1912 and 1913, the years of the highest distribution before the war. Of the amount distributed, £181,000 was given to London Hospitals—£140,025 in aid of general maintenance, £12,150 to the reduction of debts on maintenance account, and £28,825 towards improvement schemes, or in reduction of liabilities on such schemes undertaken before the war. The Fund had continued to encourage hospitals to postpone all schemes of capital expenditure not exceptionally urgent, or not already in hand at the outbreak of the war, and the total grants in aid of new schemes were only £8,675. Grants for maintenance were £8,750 more than in 1916, and £34,650 more than in 1915. Of £9,000 distributed by the Convalescent Homes Committee, £7,050 was allocated to consumption sanatoria, and £1,950 to convalescent homes for use of patients in London hospitals. The total sum distributed during the last ten years was £1,614,000. Since the foundation of the Fund 21 years ago, £2,458,416 had been distributed.

During the year the amount spent on administration was £3,460 10s., or £1 9s. 0½d. per £100 of the total amount received, as compared with £3,161 2s. 3d., or 19s. 4½d. per £100 in the previous year. The increased expenditure had been occasioned mainly by additions to the remuneration of the staff.

The Speaker, in moving the adoption of the report, congratulated the Council on the low cost of management. He took the opportunity of informing the Council that, for the first time, the Governors had secured this year the services of some lady visitors—a step to which the King readily gave his consent.

The London Hospital.

Lord Knutsford, presiding at the quarterly meeting of Governors of the London Hospital on June 6, mentioned that the Lord Mayor had made an appeal on behalf of the hospital, which had resulted in the subscription of £30,000, and the Governors proposed to place a tablet in the institution as a permanent record of his kind action. He proceeded to say that he himself required one million half-crowns this year for the same object, and in order to try and achieve what he desired, he had written 11,000 different letters. So far, he had received 720,000 half-crowns, which was a long way off the desired total. In October, for the first time, women students would be admitted to the Medical College on equal terms with men, and the various hospital appointments would be open to them. This week would be opened the Edith Cavell Home. The hospital had received an exceedingly generous gift from Sir George Frampton, who had made the bust of the late nurse for erection in Trafalgar Square, and had given a replica of it to be placed in the Nurses' Home. In addition, he had induced his friends to pay for some engravings for the sitting-room, all of which were worth over £100 each.

Maternity and Child Welfare.

Dr. Hayes Fisher, President of the Local Government Board, addressed a meeting at Arundel Castle on May 11 upon the important question of the welfare of mothers and children. He advocated the vigorous pursuit of the policy adopted some time ago of supervision by qualified and trained health visitors. In 1914 there were 600 such visitors appointed; now upwards of 2,000 are engaged in the useful work. He also directed attention to the value of recently established welfare centres, where advice is given as to the proper clothing and feeding of infants. It was admitted, he said, that there was a shortage of midwives for the service of the poor, but he hoped that the marvellous energy the women of this country were pouring out in tending the wounded and in other directions in connexion with war would flow back again from France, Flanders and other parts into domestic channels, giving a greater supply of midwives and nurses. Home nursing was an important part of that work. With all the money that had been raised by taxes and county rates and subscribed by benevolent people, we had not in any one year spent a million pounds on this most admirable service.

Mr. Fisher outlined the Government scheme for securing efficient treatment of necessitous mothers and infants up to five years, whereby half the cost would be borne by the State and the other half be raised by local authorities. With the help of the benevolent public, he had no doubt that such ex-

pense would bring forth excellent results in preserving the lives of many mothers and children which would otherwise be lost.

Having alluded to the Duchess of Norfolk's Infant Welfare Centres at Arundel and Littlehampton as models, Mr. Fisher quoted recent figures to show the decline in the birth-rate of large German towns, which amounted to 50% in the last four years. While, from our point of view, that was rather satisfactory, it was no reason why we should stop doing all we could to increase our birth-rate and protect our infants from many of the diseases to which they were subject. To his mind, the housing question was more at the bottom of the whole health question than anything else, and before he left the Local Government Board he hoped to lay on the table of the House a great national housing policy.

The Royal College of Surgeons.

At an ordinary meeting of the Council of the Royal College of Surgeons of England, held on May 9, Major-General Sir George Makins, President, in the chair, Sir Alan Reeve Manby and Colonel Sir Robert Jones, A.M.S., were admitted Fellows of the College. Mr. J. C. Turner, F.R.C.S., L.D.S., received the "John Tomes" prize, together with a document declaratory of the award for his work on dental pathology. Miss Edith Marjorie Rooke was handed a document certifying her appointment as Begley student for a period of three years.

The President reported that he had appointed Mr. D'Arcy Power as Bradshaw Lecturer for the ensuing year.

A bust by Chantrey of John Scott, F.R.C.S., a member of the Council of the College from 1844-46, presented by Sir L. A. Selby-Bigge, was accepted with the best thanks of the council.

Diplomas of member were conferred upon a number of candidates.

Correspondence.

MEDICAL WAR RECORDS.

Sir,—You were good enough to draw attention in a leading article in your issue of December 7 to the work of the War Records Section in connexion with the records of the A.A.M.C., A.I.F., and commended the efforts of the Medical Collator to the profession for sympathetic interest and co-operation.

I should be glad if you will allow me to endorse your recommendation (which I can do with propriety, since my interest in the medical records should be only the same as that of the profession as a whole).

I would like further to refer to a way in which medical men, especially returned medical officers, can definitely assist. There is a very considerable number of gaps in the records of the work of special units and administrations, etc., and also, and especially, an absence of considered notes and comments, based on facts and observation, on special aspects of the work, which are required, both from the point of view of narrative of events, and also in order to assist in the judgement which it will be necessary to make for future guidance on the efficiency or otherwise of the organization and methods of the Australian Army Medical Services, as tested by the requirements of active service.

It would assist greatly the object I have in view as Collator, namely, to provide a future historian with all the data required for a faithful and adequate account of the work of the A.A.M.C., A.I.F., if as many as can will assist in filling gaps in respect of both these requirements. I have already noted to a considerable number of medical officers matters on which information is required, and I hope in the near future to specify from time to time special subjects on which assistance is desired. Any notes and memoranda, especially if based on personal diaries or on letters or notes taken, will be very welcome. I am particularly desirous of obtaining accounts of work in the nursing service, detailed records of which appear very deficient, and also accounts of the work of the A.A.M.C. from the point of view of "other ranks."

As an example of what I mean I may instance the medical work at Lemnos in 1915, when in several important aspects the Australian Army Medical Service appears to have been in advance of all others; for example, in pathology, dentistry, X-ray work and special eye work. It is difficult to get an account showing the general and relative value and interest of such work from the bald official records and statistics,

which are, however, of course, essential to enable any general personal accounts to be critically examined and made definite.

Another, though less pressing, desideratum is photographs. The Australian War Records Section in England has arrangements for making use of private collections; negatives (and, if necessary, prints) being enlarged to a standard size and catalogued, the original being returned and enlargement supplied at cost price. Information of any available photographs illustrating the work of the Australian Army Medical, Dental and Nursing Services will be valued, so that arrangements may be made to utilize them.

Memoranda, or a note of available records, such as diaries or correspondence, could be sent to me, care of D.G.M.S., Defence Department, Melbourne. All such material supplied to the A.I.F. War Records Section is considered to be sent for historical and cognate purposes only and to be within reasonable and obvious limits privileged and confidential.

Yours, etc.,

A. GRAHAM BUTLER,
Colonel, A.A.M.C., A.I.F.

Department of Defence, Melbourne,
December 23, 1918.

THE NAVAL MEDICAL SERVICE.

Sir,—I cannot but write to express my hearty agreement with you about the merits of the Royal Australian Naval Medical Service.

During the great war I put in three and a half years as surgeon and staff-surgeon. I regretted very much leaving, though common sense told me it was best to get back into civilian life.

I distinctly avow that I know of nothing better as an all-round finish to a one-sided education like medicine than a term of service under the white ensign. You need not stay all your life.

Many young and also old graduates are lop-sided and top-heavy with a limited outlook. They imagine they are the only workers on the beach. Service afloat will correct that. The ward-room levels.

Pay is not everything. The padre, the engineers are often graduates; lieutenants (navigating, gunnery, torpedo) are as good as we are. What about their pay? A lot less than ours. We're the best paid section afloat.

Do you know, Sir, that these men of the sea marry and their wives play the game splendidly on small salaries. I don't say marry to a young graduate, but don't moan. The outlook for medicine is far before the padres or the average lieutenants.

As to seniority. With average men—and we're mostly that—I can't see a better system. Merit is rewarded in the Navy, as any man who has kept his eyes peeled during the past four years can see for himself.

Temperance, efficiency, cheeriness, a desire to help and shove things along meet its full reward in the R.A.N. as elsewhere.

Australia for Australians is a parrot cry. At present the service needs R.N. men to train us, to discipline us, to make us as good and as efficient as most of them are. My belief is that we shall need R.N. men to help us along for some years to come if the service is to become really efficient.

Making a navy is surely a matter of years, and young Australia—splendid as I know her to be—needs but the one thing to become whole, and that is "discipline." The R.N. men have that, and gradually we shall acquire it.

Yours, etc.,

F. HAMILTON KENNY.

Crow's Nest, Queensland,
January 14, 1919.

THE FRIENDLY SOCIETY LODGES IN VICTORIA.

Sir.—A circular has been issued by the Victorian Branch of the B.M.A., notifying that negotiations have been broken off with the F.S.A., and also that Tramways Union and the Cosmopolitan Benefit Society (what is it?) have accepted the terms of the Wasley agreement. No doubt this is a very fine thing for the city and suburban men, but where do the country men come in? Are the above societies to be extended to the country? Probably not so. We all resigned together, and we should all keep out of any contract practice

until all can take it up again at the same time; that's reasonable; otherwise, the B.M.A. is as bad as the F.S.A. in forming institutes which ignore the country lodges and hold up a settlement. And now the B.M.A. does exactly the same thing with the country doctors; we are ignored; certainly we get our circulars regularly.

If the Cosmopolitan Benefit Society is "making rapid headway," as the circular announces, then, with the Tramway Union thrown in, the city and suburban men are probably satisfied, and as the city and suburban lodges have their institutes, probably they are satisfied also, and the country men (and lodges) are left.

The principle seems wrong.

Yours, etc.,

PERCY G. CLARKE.

Portarlington, Victoria,
January 14, 1919.

THE DETERMINATION OF SEX.

Sir.—Your correspondent, R. A. Parker, in *The Medical Journal of Australia*, January 18, inst., says: "Observers have noted that one ovary is only capable of producing male offspring, and the other one only female offspring." I know of at least one case where the left tube and ovary were removed for a ruptured "ectopic gestation," the patient having four children subsequently of mixed sexes, male and female.

Yours, etc.,

J. E. FOLEY.

Cowra, New South Wales,
January 17, 1919.

THE FRUIT AND VEGETABLE FUND FOR FIGHTERS' FAMILIES.

The Honorary Organizer of the Fruit and Vegetable Fund for Fighters' Families (Central Depôt, 16 Carrington Street, Wynyard Square, Sydney) has requested us again to appeal for support to this excellent fund, which has assisted the wives and children of our sailors and soldiers on active service since July, 1915. It is pointed out that long months will go by before the last of our brave sailors and soldiers are home again. In the meantime, it should be a privilege to keep their wives and children free from want. Fruit, vegetables, food of every description and women's and children's clothing are being sought. If you cannot send goods, send money.

Proceedings of the Australian Medical Boards.

VICTORIA.

The following have been registered under the provisions of Part I. of the *Medical Act*, 1915, and Act No. 2,581, as duly qualified medical practitioners:—

Ivan Blaubaum, "Kama," Wynnstay Road, Armadale, M.B. et Ch.B., New Zealand, 1915.

Thomas Woodcock George, Ryrie Street, Geelong, M.B., B.S., Univ. Lond., 1910.

David Kerr, c/o. W. Ramsay, 80 Swanston Street, Melbourne, M.B. et Ch.M., Glas., 1895.

Dryden Stead, c/o. P. P. Wilcocks, 280 Bourke Street, Melbourne, M.R.C.S., Eng., L.R.C.P., Lond., 1892.

Ruth Pearl Anderson, Trentham, M.B. et Ch.B., Melb., 1918.

Benjamin Banko Armstrong, Pine Hill, Katunga, M.B. et Ch.B., Melb., 1918.

Francis Michael Blackall, 11 Lewisham Road, Windsor, M.B. et Ch.B., Melb., 1918.

George Hayes Brandis, 32 Richardson Street, Essendon, M.B. et Ch.B., Melb., 1918.

John Austin Cahill, Wellington Street, Flemington, M.B. et Ch.B., Melb., 1918.

William Henry Fitchett, Melbourne Hospital, M.B. et Ch.B., Melb., 1918.

William Joseph Flanagan, 31 Acland Street, St. Kilda, M.B. et Ch.B., Melb., 1918.

John Ellis Gillespie, "Chesterfield," Mayfield Avenue, Malvern, M.B. et Ch.B., Melb., 1918.

Alfred William Harley, 14 Mayfield Grove, Malvern, M.B. et Ch.B., Melb., 1918.
 Leonard John Thomas Hartnett, 164 Pascoe Vale Road, Essendon, M.B. et Ch.B., Melb., 1918.
 Michael Romuald Healy, "Trenton," Chapel Street, East St. Kilda, M.B. et Ch.B., Melb., 1918.
 Raymond Valentine Hennessy, "Shirley," Marine Parade, St. Kilda, M.B. et Ch.B., Melb., 1918.
 Stewart Hills, Melbourne Hospital, M.B. et Ch.B., Melb., 1918.
 Henry Franklin Little, 29 James Street, Northcote, M.B. et Ch.B., Melb., 1918.
 Colin Ferguson Macdonald, Children's Hospital, Melbourne, M.B. et Ch.B., Melb., 1918.
 Kevin Aloysius McCarthy, 20 De Graves Street, Parkville, M.B. et Ch.B., Melb., 1918.
 Henry McLorinan, "Rheola," Williams Road, Toorak, M.B. et Ch.B., Melb., 1918.
 Charles Howard Osborn, 4 Finch Street, East Malvern, M.B. et Ch.B., Melb., 1918.
 Harold Isaac Robinson, "Creighton," Melton, M.B. et Ch.B., Melb., 1918.
 Hilary Joseph Roche, "Upton Grey," Torrington Road, Toorak, M.B. et Ch.B., Melb., 1918.
 William Dixon Saltau, Spence Street, Warrnambool, M.B. et Ch.B., Melb., 1918.
 Albert William Shugg, 56 Charles Street, Kew, M.B. et Ch.B., Melb., 1918.
 Douglas John Thomas, Melbourne Hospital, M.B. et Ch.B., Melb., 1918.
 Henry Charles Varley, Fairfield Hospital, M.B. et Ch.B., Melb., 1918.
 Ivan Meyer Wartzki, 2 Kelvin Grove, Armadale, M.B. et Ch.B., Melb., 1918.
 David Leslie Yoffa, 79 Albert Street, Brunswick, M.B. et Ch.B., Melb., 1918.

The name of the undermentioned deceased practitioner has been removed from the Register:—
 Alexander Smith Aitchison.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xiii.
 Walter and Eliza Hall Institute of Research in Pathology and Medicine, Melbourne: Director and First Assistant.
 Royal Australian Naval Service: Ten Commissions as Surgeons.
 Department of Public Health, Queensland: Senior Microbiologist and Pathologist, Assistant Bacteriologist and Pathologist.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

| Branch. | APPOINTMENTS. |
|---|---|
| VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.) | All Friendly Society Lodges, Institutes, Medical Dispensaries and other Contract Practice. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. |
| QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.) | Aramac Hospital. Australian Natives' Association. Brisbane United Friendly Society Institute. Cloncurry Hospital. |

| Branch. | APPOINTMENTS. |
|---|--|
| TASMANIA. (Hon. Sec., Macquarie Street, Hobart.) | Medical Officers in all State-aided Hospitals in Tasmania. |
| SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.) | Contract Practice Appointments at Remmark. Contract Practice Appointments in South Australia. |
| WESTERN AUSTRALIA. (Hon. Sec., Health Department, Perth.) | All Contract Practice Appointments in Western Australia. |
| NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.) | Australian Natives' Association. Balmain United Friendly Societies' Dispensary. Canterbury United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Friendly Society Lodges at Lithgow. Friendly Society Lodges at Parramatta, Auburn and Lidcombe. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. New South Wales Ambulance and Transport Brigade. Newcastle Collieries—Killingworth, Seasham Nos. 1 and 2, West Wallsend. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phoenix Mutual Provident Society. |
| NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.) | Friendly Society Lodges, Wellington, New Zealand. |
| Diary for the Month. | |
| Jan. 28.—Tas. Branch, B.M.A., Annual Meeting. | |
| Jan. 29.—Vic. Branch, B.M.A., Council. | |
| Jan. 29.—Northern District Medical Association (Annual), Tamworth, N.S.W. | |
| Jan. 30.—Eastern Suburbs Med. Assoc. (N.S.W.), Annual Meeting. | |
| Feb. 4.—Tas. Branch, B.M.A., Council. | |
| Feb. 5.—Vic. Branch, B.M.A. | |
| Feb. 5.—Federal Committee of the B.M.A. in Australia. | |
| Feb. 7.—Queensland Branch, B.M.A. | |
| Feb. 11.—N.S.W. Branch, B.M.A., Ethics Committee. | |
| Feb. 13.—Vic. Branch, B.M.A., Council. | |
| Feb. 14.—Queensland Branch, B.M.A., Council. | |
| Feb. 14.—S.A. Branch, B.M.A., Council. | |
| Feb. 18.—Tas. Branch, B.M.A., Council. | |
| Feb. 18.—N.S.W. Branch, B.M.A., Executive and Finance Committee. | |
| EDITORIAL NOTICES. | |
| <p>Manuscripts forwarded to the office of this journal cannot under any circumstances be returned.</p> <p>Original articles forwarded for publication are understood to be offered to <i>The Medical Journal of Australia</i> alone, unless the contrary be stated.</p> <p>All communications should be addressed to "The Editor," <i>The Medical Journal of Australia</i>, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.</p> | |